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For all William Empson's efforts to paint it as such, "CAMBRIDGE ENGLISH" was no local, parochial affair but the dominant critical orthodoxy for a generation. Iain Wright reviews two new volumes recalling the Leavises and their circle and that of the lesser-known Mansfield Forbes (page 18)



A classroom of one's own: in a special supplement, *THE TIMES* looks at the development of WOMEN'S STUDIES and at the impact of FEMINISM in higher education (pages 25-29)

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A balanced leadership

The number of scientist vice chancellors has increased, is increasing – and ought to be diminished? Maybe that is going too far. Appointments to vice chancellors are made on an individual basis. They are self-contained decisions. So great care must be taken before connecting up these decisions into a significant trend, especially when their number is inevitably small.

Yet there is at least *prima facie* evidence that humanists and social scientists are playing a diminishing role in the leadership of universities. Two-thirds and more of vice chancellors (and school and college principals in federal universities, but excluding medical schools) come from science, engineering or medicine. Less than 30 per cent come from the humanities or social sciences. The traditional humanities are particularly badly represented among the vice chancellors. Only one each from philosophy, modern languages, and English. Among the social scientists there is a bias towards the applied and the professional.

This preponderance of scientists among university leaders is out of line with the arts/science balance within the academic profession and with their respective weights in the student population. According to the most recent figures, for 1983/84, 138,000 university students were studying arts subjects, 128,000 sciences and 26,000 medicine and dentistry – 47, 41, and 9 per cent respectively.

Nor is this phenomenon confined to the universities. Only a small number of polytechnic directors, eight out of 29, are not scientists or engineers, although this number does include the solitary classicist managing a major institution of higher education in Britain. Among principal and directors of colleges of higher education there is a better balance between arts and science, mainly because many still have a strong background in teacher education. Yet polytechnics have as many students enrolled in social, administrative and business subjects as in

science and engineering.

How did the lopsided situation of a system roughly split down the middle between arts and science being led predominantly by scientists arise – and does it matter? Both questions are difficult to answer. That to the first has many strands. Part of the reason is that once scientists were regarded as irredeemably specialist and only humanists were considered to possess the general integrative qualities required for leadership. Now that view has been reversed. Part is that within universities and other institutions it is science and technology departments with their heavy demands on expensive equipment and support staff that need to be managed; arts departments can more easily be left to look after themselves. So scientists are more likely to acquire managerial experience, and with it the ambitions of leadership.

Other more speculative reasons can be suggested. It may be that humanists, many of whom continue to give their allegiance to a solitary artisanal scholarship, have a mentality that is uncongenial to assuming or exercising leadership. But does this also apply to social scientists with their often worldly and collaborative concerns? Maybe universities and polytechnics are just playing safe. Who in the present political climate would appoint as vice chancellor or director a subversive sociologist or an out-of-touch humanist? How could such a man or woman manage the institution's entry into the brave new world of high tech?

Yet the retreat of the humanists and social scientists, whether voluntary or not, from positions of leadership in higher education is a serious question. *THE SUNDAY TIMES* poll published two weeks ago showed that all the fissures in academic opinion are between arts and science rather than between universities and polytechnics, or young and old, or men and women. The hackneyed C. P. Snow thesis of the two cultures may have been exaggerated

but it contained, and contains, some truth. Nor is it necessarily a question of competing philosophies or conflicting values or anything as high flown as these; on a range of more pragmatic issues like access, selective research, the unit of resource people in arts often have a different perspective. It seems reasonable that this different perspective should be decently represented among higher education's leaders.

Some will say that in today's austere climate scientists and engineers make better managers, maybe because their reductionist view of the world screens out the difficult ambiguities and awkward qualifications. They will also say that every Government since the war has attempted to bring about its "swing to science", efforts which higher education has persistently obstructed. With more scientists in the managerial saddle maybe higher education will finally be able to deliver. Others will say that scientists and engineers are tempted by the very procedures of their disciplines to adopt a mechanistic approach to management. In periods of crisis such an approach may work well for a while. But it excludes the more creative aspects of management, those which help to build up institutions rather than just cut them down to size. For these we need the help of the sciences and moralization and other concepts from the social sciences and humanities.

But, of course, the issue is not whether scientists make better or worse leaders than humanists. The issue is one of the appropriate balance. Even the smallest institution of higher education is a complex organism, accumulated from quite different traditions and containing quite different practices. This is true *fortiori* of the system as a whole. This diversity of tradition and practice should be adequately represented among the system's leaders. If it is not, the result will be two rather than three-dimensional leadership and a cramped perception of the possibilities of higher education.

Oxford on Mrs Thatcher

If it had only been the cuts in higher education the prime minister would probably have got her Oxford honorary degree. But in a week in which her Government has so clearly set its face against a civilized compromise to settle the bitter 11 month miners' strike, in a week in which Mr Clive Ponting is being prosecuted by her Government for an alleged breach of the Official Secrets Act in a case that may require textbook descriptions of the supremacy of Parliament to be rewritten, it was impossible for Oxford University to award Mrs Thatcher an honorary degree. The political atmosphere is just too poisoned.

The prime minister's friends and supporters of course will regard Oxford's rebuff as an insult and a betrayal. No doubt Congregation's vote in 1985 will come to be bracketed in their minds with the Oxford Union's notorious vote back in the 1930s about not fighting for King and Country. Already it is being said that the vote will be widely misinterpreted outside Oxford, and especially abroad. But it is surely just as likely that the vote will be correctly interpreted as evidence of the now widespread disapproval of Mrs Thatcher's policies in Britain, especially within the traditional establishment of which Oxford is an inevitable part. In a democracy we should be ashamed of dissent. Nor should a party leader, even when prime minister, be regarded as the embodiment of national tradition. So the issue of *the majesty*, in however distant a form, simply should not apply.

Others, much less friendly to Mrs Thatcher, will still regard the vote as unfortunate and even provocative. Their fear will be that Tuesday's work in the Sheldonian will win no friends for the university in high places. True enough. But surely it would not be hypocritical for a university to suppress its true opinion, because it feared the

would be an absolute self-betrayal. Oxford is one of the few institutions left in Britain with the self-confidence and especially the material independence to refuse a prime minister. In a democracy we should rejoice not repent for such a freedom.

Others again will blame the vice chancellor or his senior colleagues. They will be charged with bungling by those who will argue, with the exquisite benefit of hindsight, that the award of an honorary degree to Mrs Thatcher should have been got over quickly. Not only would the full extent of her controversial role as prime minister not have been realized in, say, 1980, but the award would have appeared to be to a distinguished Oxford graduate who had reached the top of the political tree and not carried with it any implied endorsement of her actual record in office. Surely this is unfair. Mrs Thatcher's abrasive style, and the opposition which it has provoked, were both clearly established almost immediately she became prime minister. The university's leaders acted not unreasonably that both Mrs Thatcher and the opposition to her would mellow. It is not their fault that the reverse has occurred.

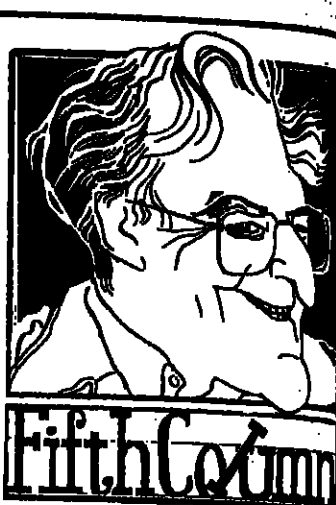
Finally there will those who say that Oxford should have followed precedent and awarded Mrs Thatcher an honorary degree like all her predecessors as prime minister who had been Oxford graduates (a quaint restriction that all prime ministers come from Oxford is semi-automatic). So whatever view was taken of Mrs Thatcher's higher education policy or more broadly her political style, the members of Congregation should have voted for her.

There are two objections to this argument. First and less important in the long run, the recognition of the

dominance in however general terms. Otherwise the whole operation of awarding honorary degrees would become an entirely amoral process. To invite members of Congregation to vote for Mrs Thatcher even if they strongly disapproved of her acts and intentions would be to suggest that they behave dishonestly, and so discredit the entire system of honorary degrees.

Second and much more relevant in these circumstances, Mrs Thatcher's preoccupation as prime minister has been to break not to respect precedents. Her Government has worked consistently (and mainly unsuccessfully) – but that is no mitigation) – to overturn the postwar consensus in British society. Consensus, convention, compromise, these are the canons that must be rooted out if Britain is to be regenerated. That is what Mrs Thatcher stands for. So it would be deeply ironic if the argument that she should receive an honorary degree, simply because it has been the convention, had prevailed.

High on the symbolic hit-list of Mrs Thatcher's Government have been some of our strongest traditional institutions – an impartial civil service, excellence in the arts underpinned by clear public patronage, a centuries-old tradition of local government, free universities deliberately distanced from the state. Here it seems to Mrs Thatcher's gaze are the most stubborn concentrations of malcontents committed to yesterday's ideas and snomed by out-of-date practices and conventions. In the last five and a half years Mrs Thatcher has set out to disturb these traditional institutions, unlike her seven predecessors as prime minister honoured by Oxford who tried to sustain them. So it is hardly surprising, and certainly not wrong, that one of the most powerful of these institutions should dissent.



Now that the *Radio Times* has been redesigned so as to make it indistinguishable from the *TV Times* it is increasingly difficult to know whether one is watching BBC or ITV.

It is not, I believe, just my advancing age which makes it difficult to tell the difference between the programmes. The gaps for advertisements have been cut out, but programmes like *Dallas* have blank moments where the adverts appeared in America. At now the BBC's *Six O'Clock News* has a break in the middle which suggests that it is a slot waiting for adverts, as we have been prepared in advance for the introduction of advertising on the BBC.

That may not be a bad thing because the advertisements are generally of much higher quality than the programmes. Not surprisingly, they cost a lot more in second. I find myself switching to ITV in the hope that *Quasimodo* will appear waiting for the telephone. I hear that a visitor to Notre Dame was heard the other day shouting from the tower, "It's for you-her."

Brideshead Revisited and *The Jewel in the Crown* are always quoted as the programmes which should have been made by the BBC and were in fact made by Granada. The BBC's excuse is their cost. But I remember Michael Gill, the producer of *Brideshead*, pointing out that it had cost a lot of *Civilization* to make money because of its huge advertising budget. The two prestige series must have done the same.

What does seem to be lacking in the BBC at the moment is the confidence that enabled its senior people to launch such ventures a few years ago. In the last few years the BBC has not delivered the innovative and brilliant programmes that set a standard for the whole output for many years. Only natural history seems to be getting better and better, and that comes from Bristol, not London.

A standard response in such moments is to suggest that the place should be reorganized. If the product is not shining, reorganise the structure of the organization. That has always been a delusion. The problem has to do with the people. I do not believe that taking advertisements will provoke a renaissance in the BBC. It will merely capture much of the available advertising from ITV and will make them both the poorer. The problem has to do with money and that must have to do with leadership at the top.

Fortunately some things change. I see in *The Listener* that John Drummond, recently director of the Edinburgh Festival and now returning to the BBC as controller, music designate, was treated in the offhand way that does not endear the BBC to the public when the major television series which he had been invited to undertake was cancelled with only a brief note. I feel for him. The major series that I had been invited to write a few years ago and for which I had negotiated a year off without pay, was cancelled just as briefly. The only difference was that it was by word of mouth. John Drummond's.

Patrick Nutgens

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Gourmets gather ingredients for foodie centre

by Paul Flather

An unpublished cookery manuscript by the philosopher John Locke, Queen Elizabeth I's oak plates, an *haute cuisine* restaurant and Lord Forte are among the ingredients of a secret plan to set up a new food study centre within Oxford University.

A group of senior Oxford dons including Professor Peter Mathias, professor of economic history, and Dr Charles Webster, director of the Wellcome Unit for the History of Medicine, and led by Lord Briggs, provost of Worcester College were meeting this week to agree details.

The group believes Britain lacks the kind of high calibre programme in hotel and catering management studies found in the United States, Switzerland,

land, Holland or France. At present both Surrey University and the Strathclyde Hotel School offer postgraduate programmes.

The group hopes that the centre would use distinguished academics and link up with Oxford Polytechnic and the Oxford centre for management studies, now known as Templeton College, which offer connecting courses in catering and in management.

The new centre would hope to organize special events and exhibitions on culinary themes.

But details which surfaced in a set of leaked minutes, have aroused concern among fellows at Worcester and among university officers.

The minutes suggest that the proposed centre might be housed in a new building overlooking the famous Worcester lake. No fellow of Worcester has

so far been informed of the project. The minutes also discussed ways in which a new subject course in food studies might be developed and in particular how Templeton College might produce an MPHil option in hotel and catering management.

Lord Briggs insisted this week that no final decision had been made. He said that the project would in no way involve Worcester College and there were no plans to develop new university courses.

Among those involved are M. Raymond Blanc, whose new restaurant, Le Manoir aux Quat'saisons at Great Milton just outside Oxford has recently been awarded two Michelin stars and Dr Brian Harrison a social historian from Corpus Christi College, who has written on *Drink and the Victorians*.

Two-tier plan gets thumbs down from polys

by Karen Gold

Polytechnic academic boards and committees are saying a resounding "no" to the Council for National Academic Awards over its proposed two-tier validation system.

The vast majority of Britain's 30 polytechnics questioned on their replies to the council's proposals criticised their provisions as too little too late. "They have as much force as a wet lettuce," said one polytechnic director.

A handful of polytechnics, including Thames, Wales, North Staffordshire and Brighton say they would probably accept the proposals as they stand, on the assumption that they would be included in the more devolved Mode B, which gives validation powers to academic boards subject to checks from the CNAA such as annual reports and visits.

But most of the polytechnics reserved their odium specifically for those checks, and said that even Mode B was unacceptable. Several, including Birmingham, Plymouth, Wolverhampton and Trent, said they were not interested until the CNAA had developed a 'Mode C': a model more like accreditation.

Leeds' academic board commented that "the freedom claimed for Mode B seems on examination to be illusory". Newcastle, the CNAA's most successful validation partner, said it was "unacceptable" Oxford among many condemned it as "bureaucratic and costly".

Several polytechnics including Sheffield and Teesside, attacked the split into Modes A and B as insidious and divisive. Some like Central London wanted a continuum of validation

arrangements. Others accused the council of dashing to reach an agreement before the report of the Lindop committee into public sector degree validation and standards.

Leicester's academic board greeted the proposals with "grave disappointment", saying they bore marked resemblance to previous ones and would impose new obligations on institutions "of a much more detailed and oppressive kind than existed at present".

Bristol's assistant director Dr Colin Chudley said feeling in the polytechnic was that the proposals went nowhere near far enough. "That's interesting because there is a lot of support at Bristol for the CNAA, but people just feel this isn't much after years of tinkering," he said.

Huddersfield's academic board said the proposals were disappointing and did not achieve what the polytechnic hoped the Lindop committee would achieve. Mr Gerry Fowler, director of North East London Polytechnic said the proposals appeared to have "a distinction without a difference... we were almost unanimous on it in the polytechnic: we will say 'produce something better and fast'".

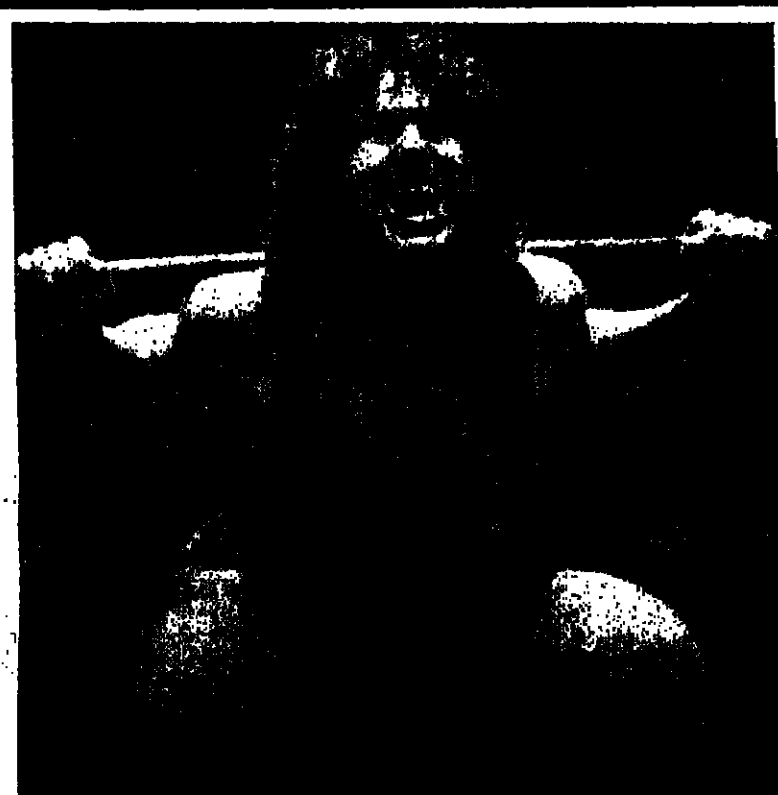
A number of polytechnics including Manchester and Kingston said they would be prepared to discuss amendments of Mode B. Among its conditions Manchester's academic board would want money from the CNAA registration fees for the extra costs of the scheme. South Bank's academic board subcommittee said that the models were almost dismissive in dealing with cost-effectiveness, and centred on the council's role and interests.

Responses on the Mode A/Mode B proposals which were announced last December are due at the CNAA on Monday. Many of the polytechnic ones do say that they think the Mode B scheme is a move in the right direction, giving more freedom to institutions but not enough.

Dr Alan Matterson, assistant chief officer of the CNAA, said that Mode B suggested "a major transfer of authority for validation to the institutions. "I am not sure how fully that has been understood by the institutions, but partly because quite properly we have not developed and published the means we would use to actually do it," he said.

The council, far from preempting Lindop, had consulted the Lindop committee on the proposals for changes in validation which had been developing over a long time and had been encouraged to accelerate them, he said.

The CNAA had not had all the responses of institutions yet, and many colleges as well as polytechnics were involved.



DUE WEIGHT: Helen Williams, a sports science student at Brighton Polytechnic, attempts a lift during the British Student Sports Federation powerlifting championships at Essex University last week.

Inquiry held over MSc work

by Ngalo Creguer

An internal inquiry is to be held at the University of Manchester Institute of Science and Technology after allegations that a lecturer published extracts from a research student's MSc dissertation, under his own name, in specialist journals.

A formal complaint has been made against Dr Barrie Dale, lecturer in production management at UMIST. Today, *THE TIMES* shows how Dr Dale copied words for word from the dissertation of the student (who is not the complainant), whose work he was then supervising. He also wrote from a memorandum in which Dr Dale seeks subsequently to acknowledge the work of others in seven published papers, and two accepted for publication. Dr Dale said this week Mr Stephen

Brown, his former research student, had given him a letter "which gave me permission to do it. It was an agreement on publication. That is all I have to say, as I do not wish to prejudice any inquiry".

Mr D. H. McWilliam, the registrar, denied that UMIST was "dragging its feet". He added: "An individual has been told that his formal complaint will be examined with UMIST by people with no previous knowledge of the case. He has been offered two methods by which this can be done – one formal, one informal."

"Any ventilation of the issue in the press beforehand will clearly be prejudicial, in the sense that the people inquiring into the case may form views and opinions prematurely." Full story, page 8

Surprise ACSET decision provokes anger

by Patricia Santinelli

Deep suspicion and anger at the Secretary of State for Education's decision to end the life of the Advisory Committee for the Supply and Education of Teachers has been expressed by a number of members and representatives of teacher trainers.

The announcement, which has taken both the chairman, Sir Clifford Butler and members by surprise, was made by Sir Keith Joseph last week in reply to a parliamentary question. Sir Keith said that ACSET had now offered advice which covered initial training until 1989 and needed to be assimilated. He would consider con-

vening a new committee in two years' time. The present committee was set up late in 1980, after a two-year gap. The previous committee, known as the Advisory Committee for the Supply and Training of Teachers, was dissolved in 1978.

Both the Association of University Teachers, and the National Association of Teachers in Further and Higher Education, as well as the Polytechnic Council for the Education of Teachers, suspect however that Sir Keith's decision is a prelude to tampering with ACSET's advice, all of which had resource implications.

Savings plans unveiled

by Peter Aspden and Olga Wojtas

The first effects of the latest cuts in universities recurrent grant from the Government are beginning to emerge, with announcements by Bristol and Birmingham universities that they are facing severe financial problems.

The vice chancellors of both universities said in separate statements that the new dawn promised by the Government after the three years of hardship following the 1981 cuts had failed to materialise.

And both universities fear that any further cuts over the next few years could severely threaten their status. The vice chancellor of Birmingham, Professor Edward Marshland, said the Government had apparently abandoned the concept of "level funding", causing the continued erosion of the real value of the University Grants Committee's recurrent grant.

He said vacancies would continue to be frozen, while the implementation of any refilling which has been approved would be delayed for nine months.

"Despite what has already been achieved in the way of economies, we are now faced with the fact that we have no prospect on financial grounds of maintaining the range and extent of our present activities at the standard demanded of a major university," he said.

A vice chancellor's planning committee has already been set up to look at long-term finances and prepare an effective academic plan, to "bring the university to a size and structure that will enable it to meet the challenges of the next decade".

At Bristol, a savings action plan has been announced by the acting vice chancellor, Professor Peter Haggart, to overcome a projected deficit of £1,180,000 next year.

The university's information officer Mr Don Carleton said Bristol had managed to break even over the three years following the 1981 cuts – but now the Government had "moved the goalposts".

"We have been impeded, not only on the horns of a dilemma but on the forked tongs of the DES," he said. The savings plan includes further freezing of vacancies, cuts of 4 per cent in departmental budgets, cutting the students' union grant by £10,000 and reducing funding for academic staff travel.

But the situation is not universally gloomy. Aberdeen, among the worst hit universities in the 1981 cuts, has now cleared its deficit and has a balance of £142,000.

The main reason for its improved financial state is the loss of 200 staff. This is revealed in the university's 1983/84 financial report, which describes the past three years as "traumatic".

The proportion of Aberdeen's income from the UGC and fees has fallen from around 82 per cent in 1980/82 to just under 75 per cent last year.

Both the AUT and Natfhe which are represented on the committee fear that the decision is part of a further move to centralize teacher education and to move away from advisory representative bodies to one such as the Council for the Accreditation of Teacher Education.

continued on page 3

Best of British departments,
12-13

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DON'S DIARY

DAY 1

I suggest to the powers-that-be that what this university needs is a regular newsletter, to tell the outside world about our achievements (and to tell our own staff and students about them too). I offer to edit it and to do a dummy for inspection. It is spring and the sap is rising.

DAY 6

The answer comes back with alarming speed: "You're on!" Though it is expressed with less brevity, it is as if everyone realized for years that we badly needed a newsletter, that these days, as the Committee of Vice Chancellors and Principals has been telling us all, a good wine does need a bush, and as if all that was wanted was a volunteer. The volunteer is flattered by the response, and eager to knock off a dummy and get the first issue out at leisure as the Michaelmas term 1984 opens.

DAY 177

The Michaelmas term 1984 opens. It's been a long hard summer. So many other things that had to be done have got in the way of volunteer work. But have been assiduously reading other universities' newsletters and trying to form a clear idea of what ours should be like. What are we going to call it, for instance? Reporter, Recorder, Bulletin? Too official sounding. Memories come back of comics read in my youth, where the young "cub" reporter, clearly destined to be an "ace" reporter before long, worked for a northern provincial paper called the *Clarion*, or the *Bugle*, which blew so hard it could be heard even in the home counties. The *Newcastle Clarion*? I thought not. It sounded like something out of an old comic.

But what about some nice straightforward assonance, playing on the "new" in Newcastle? Newsletter it is. Now we can think about the content - after we've decided on the lettering for the title. Go to the audio visual centre and look through the edictive typesets with our designer. It's a bewitching experience. We can choose from hundreds, with names as outlandish as their outlines. Some of them would look right above the door of the newest boutique, some of them do strange things to my eyes. And some of them, clearly, are not meant to be read at all. Is there, perhaps, one that's just a little on the trendy side of centre? Pick three possibilities and have them set up.

DAY 184

Am still avoiding writing copy, as I'm learning to call it, and concentrating on style and layout. Must find the tone that's right for this institution. As always, the best stimulus to thought is to look at what other people have done. Am surprised how different other universities' newsletters are from each other. Each must be right for its own institution, but this university's, for example, would be far too trashy here - look at all that colour on page one. And that one's too densely written. This one's produced more cheaply than I have in mind - and that one just looks too expensive for out thrifty tastes. But this one looks good. Now, with a layout like that, and out copy.

DAY 190

Am writing copy at last. Twenty years of writing committee agenda and minutes stand between me and my readers. Regrettably has to give way to journalism. I must write "clashes" and not "department of clashes". I must abandon people's full sets of initials and use the forenames that even their own children use. I must remember that my subject now is clarification and - a word I've not used these 20 years - explanation. Choose "lack" for the title and am reassured to find that the ABC also uses it.

DAY 193

Copy is flowing down to the typesetters below and coming back in long galleys and going back to be retyped and returning more times in a day than I could ever have imagined possible, rather like the tides in the Solent. Nevertheless, am beginning to feel confidence, though start to lose it when I try to write headlines, which seem to epitomise so obviously the style of the publication.

DAVE DICKS DEEP. How dare you ever think of putting that headline over an article about one of our most senior members of staff and his current archaeological excavation! Look! Is this a newspaper, or a learned journal? (Honest answer: it's a newspaper but some will read it as if it were a learned journal.) Alliterations, puns, and four-letter words (three-letter if possible) be my new friends; and boldness.

DAY 203

It's late October and I've hit slack water. Have begun promising the dummy for November - probably late November - with the first issue appearing in early January.

DAY 246

Suddenly it all comes together: photographs, captions, text and title page, are all there. I take a sheet of A3, fold it, and on to my simple grid start scissoring and pasting the whole thing together. Here and there gaps yawn unexpectedly. We need a four-liner to fill this hole here - and this finely-crafted piece is hopelessly too long on the page. Hack the end off it like the most brutal sub-editor. When it's all done it has, it seems to me, an elegant simplicity that is appealing.

DAY 256

It is now the day before we break for Christmas. The dummies arrive from the printer in two fat parcels. I see for the first time the title in the colour - azure - we've chosen, and now the thing is printed it's not too bad, not at all bad. Rush round the building distributing copies from under my arm to almost everyone I meet in the corridor, as if Mafeking has just been relieved. Certainly relief is there. At least one deadline was met in the same year.

DAY 270

Return to the office after Christmas and realize two things: that what I earlier thought was an elegant simplicity is actually worthy plainness; and that I've promised myself and worse - others that the first issue will have eight pages and will appear in the psychologically correct month of January. Reach for the panic button and use it to the full.

DAY 271 et seq

Intense activity, of which creative writing (my specialty) is only 5 per cent, and rewriting and proof-reading and shortening this one and lengthening that one and trying to make headlines fit neatly across columns and juggling with type-sizes and bold or non-bold and rushing down to the Itex (my subedit) are a good 95 per cent.

The dummy was gulf on the practice ground. This is a game on the old course on a winter's day. And a phenomenal new to me is what's called "copy" - so old, it probably should be called "Carter's Law": that reverse alchemy that overcomes the most golden material the instant you set it up in type. Will never again be able to read a newspaper without a shudder of admiration for those who produce a new edition every day of the week (even if their readers do accept more printing mistakes than I know mine will).

DAY 296

Two days from the end of January. The printer is here with the 5,000 copies we ordered. It's a great day. I open a tightly-wrapped parcel and lift gently. Our first issue. A feeling of pride. Just nine months and three weeks from conception to delivery. I should have realized at the outset that it would take that long.

Tony Rylance

The author is an assistant registrar at the University of Newcastle upon Tyne.

University numbers creep up

by Peter Aspdin

The number of applications and acceptances at British universities for last October rose slightly over 1983, according to the annual report published by the Universities Central Council on Admissions.

A total of 77,431 students were accepted last year, a rise of 2,571 from 1983's figure of 74,860. Applications also increased from 172,738 to 173,674.

But the rise in candidates was accounted for entirely by overseas students, whose applications increased by 9.3 per cent from 15,723 to 17,186. The number of home candidates dropped slightly from 157,015 to 156,488.

The report also records an increase in the number of home candidates accepted by universities, however, with a rise of 3.1 per cent from 69,631 to 71,768.

The latest figures are the first sign of universities' ability to reverse the declining trend in acceptances which followed the 1981 Government cuts, the report says.

The number of overseas candidates accepted also rose - by 8.3 per cent from 5,229 to 5,663. The report says: "The recovery in overseas student numbers may be attributed to several factors, among which the positive efforts of universities to recruit must figure highly."

"Whatever the reasons, it is an

encouraging reflection on the status of the United Kingdom universities in the face of high fees, the number of candidates has increased. The increase in the number of home candidates accepted provides some evidence that the universities are doing all they can to satisfy the demand for places."

The proportion of women candidates continued to grow last year, with their share of acceptances, which now amounts to 41.3 per cent of the total.

The universities of Glasgow and Strathclyde both became full members of the UCCA scheme from September 1984, which now means that it handles all British university applications and acceptances.

UCCA hiccups blamed on computer

Problems with links between UCCA's new computer in Cheltenham and some universities continue to plague the system, seven months after the machine went operational.

The plan to extend the online links to more universities putting some 90 per cent of traffic online by 1986 made UCCA decide to buy a new computer in the first place.

The problem is hardly noticeable to schools or candidates - as at January 24 144,398 decisions on this year's 165,500 applications had been processed against 448,063 of last year's 165,400. But the constant and continuing breakdown of online links caused a major row at last month's UCCA council meeting. University representatives complained about lack of information about bland, misleading and tardy information, and UCCA's complacent attitude. Some fear that schools will blame them individually for inefficient decision making.

They say they should have been told beforehand that this was to have been the first Honeywell installation in the UK to use the CP-6 communication system, and that it would be connecting equipment which had never before been connected to such a system.

UCCA's computer has to be able to communicate with a range of different machines in the universities. Worst affected by the problems are some of the ten using the Vectorgraphic system and ICL-DRS software.

In retrospect UCCA may have taken too great a gamble on getting the new machine installed and working without interrupting its tight annual schedule.

Now UCCA admits it looks like being a long and complex investigation, and last week agreed to commit resources to it. This may have to include moving the Vectorgraphic test equipment in stages away from Cheltenham to see if there is a point where problems start happening. University

ties' own computing staff are also working on the problem.

The computer's communication problems are also having side effects. One is that UCCA staff have had to time to resolve the difficulties caused by the simultaneous changeover to a new course coding system, so admissions officers do not know what changes have been in the national number of applications subject by subject. Many use these statistics as a double check on the number of offers they should make and are worried that without them they may overtake mandatory targets.

Luckily UCCA made it quite clear that polytechnics could not go online in the first years of the Polytechnic Central Admissions System (PCAS). Now admissions officers hope that PCAS starting next September, likely to increase the workload by 80 per cent, will not overload UCCA's already tightly stretched computing staff.

APT leaders to meet ministers

Leaders of the Association of Polytechnic Teachers are to discuss their demand for an independent inquiry into the Inner London Education Authority's role in the operation of the city's polytechnics with Mr Peter Brooke, the undersecretary for higher education.

The APT has been calling for an inquiry into the ILEA's actions particularly over the Polytechnic of North London and their plea was this week taken up in the House of Lords by Baroness Cox, a former PNL lecturer.

The announcement of a ministerial meeting at which the APT could put its case was made by the Government spokesman, the Earl of Swinton. He assured the House of his confidence in the inquiry established by the ILEA and chaired by Miss Sheila Browne. Lord Annan hoped that the Browne inquiry would examine the "conduct and record of the ILEA representatives on the governing body during the past 10 years, when they have not always been helpful to the director of the polytechnic in maintaining discipline."

Lady Cox warned: "There are very many staff at PNL who are deeply worried about what has happened and who are afraid of victimisation."



New-look NAB will meet with few new faces

by John O'Leary

There is only a handful of new names among the membership of the reconstituted National Advisory Body, which will hold its first meeting on Monday.

Councillor Paul White, of Essex, is the only new face on the NAB committee, representing the Association of County Councils. Two industrialists, Professor John Parnaby, of Joseph Lucas Limited, and Mr Robin Gill, chairman of 1970 Trust Limited, have been added to the board.

One of the chairman's nominees on the board has been changed, with Dr David Harrison, chairman of the Voluntary Sector Consultative Council, replacing Sir Henry Chilver. Two groups have changed their representatives: the National Association of Teachers in Further and Higher Education substituting Mr Frank Griffiths, of Teesside Polytechnic, for Dr Peter Knight, the Association of Principals of Colleges nominating Mr Kenneth Swinhoe, of Slough College.

Two further transitory groups have also been established between



Lord Perry: transitory role

the NAB and the University Grants Committee. Lord Perry, former vice-chancellor of the Open University, will chair a committee on continuing education, which Professor Brian Morris, principal of St David's College, Lampeter, chairs a group studying librarianship and information studies.

London plan faces revolt

London student leaders face a potential revolt over plans which would give them detailed control over a large slice of further education college union funds.

Under a plan which has been generally endorsed by the London Education Authority, the London Student Organization would retain 40 per cent of the £175,000 a year allocated to further education unions. The retained amount would then be allocated to individual unions on basis of need.

The LSO, which becomes the London area of the National Union of Students later this year, believes its plan would make decisions on funding more democratic and would aid unions which lack essential resources.

LSO convenor Mr Peter Carr said that allocations were currently made in May or June, while the students who would have to carry out the plan were not elected until the beginning of the academic year. This proposal would give them greater say in how much they had to spend and how proposals were drawn up.

It would also enable funds diverted to the less well organized unions who needed special short term help to overcome particular problems.

"Over a period of time individual unions would get round about the same but to help unions develop there is a need for perhaps a year-round allocation of resources," Mr Carr said. Some of the 40 per cent will be retained by LSO as an emergency fund and to cover an administration charge and affiliation fees.

LSO leaders meet with the college unions early next week to discuss the proposal, which if approved is likely to be implemented before 1986. But already there are signs that some of the larger colleges are unhappy with the plan.

One of the largest further education unions in the capital, Paddington College, is writing to other colleges urging them to oppose the plan.

Its president, Mr Marc Lamemartin, said: "We feel the proposals put far too much power in the hands of the LSO."

Thatcher row: statistics challenged

by Paul Flather

Oxford dons who led last week's majority vote refusing an honorary degree to Mrs Thatcher are now considering how best to dispel the "double-think" they feel has clouded the issue over the past 10 days.

They accept that the decision was bound to provoke hostile reactions, and few are surprised by the almost vitriolic comment from Fleet Street with the significant exception of articles in *The Observer* and *The Guardian* newspapers.

But they have been surprised by new statistics apparently prepared by the Department of Education and Science which show that education in general and higher education in particular has not been cut at all in real terms over the past five years of this Conservative Government.

The *Daily Telegraph* and *The Times* both carried articles last week arguing that in real terms education had risen from £13,613 million in 1979/80 to £13,753 million for the current 1984/85 year, with university spending rising from £1,194 million in 1979/80 to 1,338 million for 1984/85, and the entire Oxford from £69 million in 1979/80 to £71 million for the current year.

These figures were challenged in a letter to *The Times* from Professor Denis Noble, professor of car-

diovascular physiology. Professor Peter Pulzer, Gladstone professor of government and public administration, and others, who quoted from the recent White Paper that since 1980 "overall funding for universities has been reduced by 8 per cent in real terms."

Mr John Reed, tutor in German at St John's College, who also spoke in last week's debate against the award, said there appeared to be a kind of double-think going on almost suggesting that no damage at all has been done to education.

"We were labelled ideological zealots during the debate. It is these people using such statistics who are the real zealots. We did not base our arguments on empirical statistics but on the damage we could see being done all around us."

He also said that many people had missed the point about the vote. "We were not protesting about Oxford's own cuts which at 8 per cent over three years have been relatively light. We were speaking on behalf of the whole education system. It was a tiny opportunity for us to act responsibly on behalf of others."

The dissenters are currently preparing responses to some of the newspaper comment, and collating details about science research cuts. They are also looking for endorsement from

other universities, scientific bodies, and higher education bodies such as the Committee of Vice Chancellors and Principals.

There has been condemnation of much of the Fleet Street comment, with particular criticism of a leader in *The Times* just after the debate which described the 73 votes against as "spearheaded by Marxist dons". Professor Pulzer said the paper had shown itself to be "hopelessly biased".

Meanwhile Mr Geoffrey Warnock, the vice-chancellor, has confirmed that the Hebdomadal Council, the university executive, is set to review the whole basis on which Oxford awards honorary degrees to "active" politicians.

Many dons are concerned that last week's vote could tarnish the basis on which honorary awards are made. In particular it is felt the vote might rebound against those who are given awards purely on merit of academic or public achievement, or because of benefactions made to the university.

Professor A. H. Halsey, of Nuffield College, who sits on council, believes some reforms are now necessary. "I do not think it is right to pass judgement on someone who is still active in politics. Of course we shall have to be very careful in defining what is meant by active here," he said.

The issue was raised in 1975 after President Zulfikar Ali Bhutto was refused an honorary

degree but was dropped after discussion.

Cambridge University has also scotched reports that it might step into the breach and award the Prime Minister the honour denied by Oxford. Sir John Butterfield, the vice-chancellor, said the list for the degrees for this year has already been drawn up.

Sir John said there was no question of Cambridge of trying to carry favour with the Prime Minister by stepping in though it would depend if anyone raised the issue. He said Cambridge was also facing severe problems in trying to reequip scientific laboratories.

The Earl of Stockton, formerly Mr Harold Macmillan, the chancellor of Oxford, added his voice to those regretting the decision by Oxford. "No doubt those who organized this affair hoped to deal a blow to Mrs Thatcher but I fear it will rebound on the honour and position of the university," he said while visiting All Souls College.

An early day House of Commons motion attacking the vote put down by Mr Harry Greenaway, Tory MP for Ealing North, had attracted 169 signatures by the middle of this week.

The impact of the vote was being felt by some colleges this week who reported several alumni had rung up to cancel covenants for recent appeal campaigns.

NERC agrees final plan

by Jon Turney
Science Correspondent

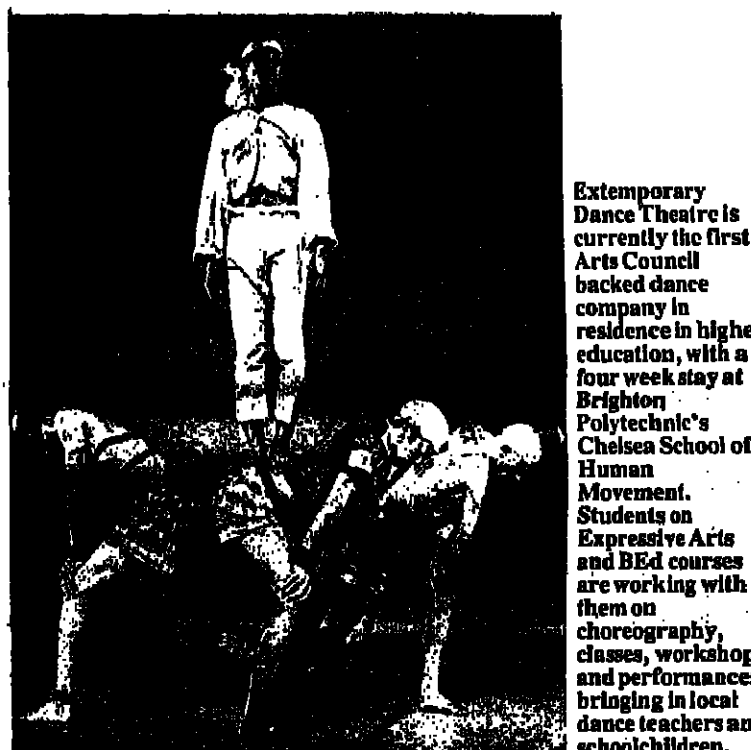
The Natural Environment Research Council has approved a final version of its new corporate plan for publication next week. Although the council had to hold a secondary emergency session after its January meeting to agree details of the plan, its main thrust is unchanged.

Some council members were concerned that the version of the plan released to directors of NERC institutes and staff representatives last December outran the council's intentions in some areas. They insisted on discussion of the full document, prolonging the January meeting and necessitating a second session the following week.

Although some changes in detail are expected to appear in the published document, the plan still calls for loss of 900 posts from the council's establishments over the next five years and for a reorganization of central administration into three new divisions.

The changes will reduce the apparent emphasis on greater centralization in drafts of the plan. In particular, the council has reserved its position on the appointment of directors for the new divisions, and on their location. In addition, NERC institutes will receive a letter from Mr Hugh Fish, the council chairman emphasizing that the plan is the basis for further discussion.

The NERC's shortage of funds was underlined last week by the news it has had to withdraw from the next phase of the International Ocean Drilling Project. The council faced a deadline at the end of January to raise the £2.5 million needed to retain membership of the drilling consortium, but could not persuade the Government or the oil industry to make up its own contribution.



Extemporary Dance Theatre is currently the first Arts Council backed dance company in residence in higher education, with a four week stay at Brighton Polytechnic's Chelsea School of Human Movement. Students on Expressive Arts and BEd courses are working with them on choreography, classes, workshops and performances, bringing in local dance teachers and schoolchildren.

Lecturers quizzed on women's role

Sociology lecturers are being asked how they treat issues of gender and the role of women in their teaching and departments.

The British Sociological Association's sex equality committee is carrying out a survey of 110 university, polytechnic and college departments of sociology or where sociology is extensively taught.

The survey asks lecturers for details about their courses, the amount of time spent on gender issues, and whether gender issues were integrated in the course. There are questions on where pressure to do women's studies came from and how students re-

sponded to introducing such issues.

It also asks whether departments monitor their treatment of gender, and whether they have a policy of using non-sexist language. There are questions on the numbers of male and female staff and their job positions.

From the 50 questionnaires so far returned, there is evidence of a particularly strong discrepancy between male and female staff, according to Sue Scott, a member of the sex equality committee. Most departments appeared to have four male staff to one female, with one department containing 18 men and no women, she said.

Management study

University management schools and the Economic and Social Research Council have commissioned a study of management education, to be carried out by Professor Peter Forrester, former head of the Cranfield School of Management.

The study, to be completed this summer, will look at the scale and effectiveness of postgraduate and post-experience university management education. It will include research on employment of management graduates, and the use they make of their training.

Depth sounding

The next inquiry by the House of Lords Select Committee on Science and Technology will be on the state of marine science and technology in the UK.

Lecturer can go to court

by Peter Aspdin

A university lecturer has a right to appeal to a court of law, rather than the university visitor, over an alleged breach of contract, a High Court judge has ruled.

Mr Justice Whitford said an appeal by Miss Brenda Thomas against unfair dismissal by Bradford University was alleging breach of contract, a matter which was "eminently suitable" to be heard before a court. He dismissed an attempt by the university to stay proceedings of Miss Thomas's appeal.

Miss Thomas, a sociology lecturer at Bradford since 1973, was appealing against her alleged dismissal in February 1983. Mr Hubert Picarda, acting for the university, had said her claim was a breach of procedural steps and, as such, an internal matter to be dealt with by the visitor - in Bradford's case, the Crown.

But Mr Stephen Sedley QC, acting for Miss Thomas, said part of her claim was justifiable in law, which put the entire case outside the jurisdiction of the visitor.

The judge, dismissing the university's motion to stay proceedings, said there was no dispute that the visitor had jurisdiction over the construction of the university's statutes, ordinances and regulations.

"But to say that this case, which includes an alleged breach of contract, is merely a matter of construction of the statutes is taking the matter to an extreme," he said. "This case is going to be a question of fact, as to whether or not certain procedures were followed by the university, and whether its obligations to Miss Thomas were properly fulfilled. That is a matter properly determined by the court."

He said if the case had been concerned with whether there was "good cause" for dismissal, or with Miss Thomas's academic suitability, the visitor would have been the proper forum of appeal - but this was an allegation of "simple breach of contract."

Mr Sedley said after the judgement that the judge had clarified an area of the law which had provoked much argument. "It means that where there is an intermingling of university rules and parts of a contract, the contract takes priority and the whole issue should be judged by a court of law."

Grading review

The Department of Education and Science has set up a review group to study scientific staff grading in the four natural science research councils. This follows criticism of the "fluid grading" applicable to some research council jobs in a report last year from the House of Commons Public Accounts Committee.

The review group, to be chaired by Dr John Bowman, secretary of the Natural Environment Research Council, will report to the DES permanent secretary Mr David Hancock this autumn.

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A UMIST lecturer has been publishing large chunks of students' work under his own name. NGAIO CREQUER reports

Students' research copied

Dr Barrie Dale, a lecturer at the University of Manchester Institute of Science and Technology, has copied verbatim from the work of a student he supervised for an MSc dissertation.

Dr Dale, a lecturer in production management in the department of management sciences at UMIST has published large extracts from the student's work under his own name. He has used the student's work in three specialist journals, and in one instance, about 70 per cent of the Dale article is in fact copied from the student's dissertation. He has also used other people's work in other journals.

The student, Mr Stephen Brown, was supervised by Dr Dale when he was working for his MSc. The MSc was completed in 1982. Mr Brown now lives in Harrogate.

Dr Dale began his career as an engineering craft apprentice. He spent six years at the Management Centre of Wigan College of Technology before being appointed to the UMIST lectureship. He is highly regarded at UMIST and has recently won research grants from the Science and Engineering Research Council, the Economic and Social Research Council, the Department of Trade and Industry, and the Manpower Services Commission. Through one of his grants is jointly awarded, they total nearly £240,000. His specialism is "quality circles", the name for a group of people in industry who work together and meet from time to time to discuss manage-

ment problems, propose solutions and say how they should be implemented. Industry has been keen to discover whether the existence of "quality circles" improves work performance and therefore overall productivity. Circles first started to appear in 1981 and now about 200 to 300 British companies operate them.

Mr Norman Tobitt, Secretary of State for Industry, commented in 1981 that consistently successful companies seemed to be those who allowed employees to become more involved and used informal groups and "quality circles".

Dr Dale's reputation is high among the small group of academics researching "quality circles" and his work has been especially prized by management practitioners who have wanted to know of the extent and effectiveness of the circles.

One of Dale's published works is an article entitled, "Evaluating the effects of Quality Circles", which appeared in the journal *Quality Assurance*, volume 9, number 2, June 1983. The article is headed by B. G. Dale, of UMIST.

Another example of copying occurs in an article published by Dale in the *Journal of General Management*, spring 1984, and titled "Quality Circles in the UK".

There are more examples in two

other papers, "Quality Circles in the UK, their extent and growth", published by the National Society of Quality Circles, in 1983, and "Quality Circles in UK manufacturing organizations", a UMIST management sciences occasional paper.

Last year another UMIST research assistant, Mr E. A. Coyle, noticed that some of his work had been put forward under Dr Dale's name. Mr Coyle took his complaint to Professor R. H. Hollier, the head of the department. Mr Coyle was working on an ESRC project, headed by Dale.

As a result of a request by Professor Hollier, Dale looked through all his published work "to see if there are any papers where I have not given credit to my research collaborators were this due".

Dale sent Professor Hollier a memorandum in which he drew attention to seven published papers and two papers accepted for publication.

Regarding "Evaluating the effects of Quality Circles", "Quality Circles in the UK", and "A Quality Circle Case Study" (by Dale and E. Barlow) he said he would write to the respective editors and "request that they publish an erratum giving an acknowledgement to S. W. Brown."

He then referred to his article "Quality Circles in the UK manufac-



Dr Dale: highly regarded

turing industry - a state of the art picture and respective trends", published in occasional papers in management sciences, 1984, paper no 8402. This was the one Coyle had complained about.

Dale said he wished the following acknowledgement to be sent to all educational establishments on the "occasional papers" mailing list, "the author has drawn on case study work being carried out by E. A. Coyle, an ESRC funded project, in presenting a number of the concluding remarks in this 'occasional paper'. He

wishes to acknowledge the authority of E. A. Coyle in this matter." Regarding his piece "A materials management system for a complex organisation" in the *International Journal of Physical Distribution and Materials Management*, July 1983, he said he would write to the editor to request they publish an erratum giving an acknowledgement to M. J. Bratty. Bratty wrote an MSc dissertation at UMIST in 1982.

As for an article entitled "The management and control of quality in small British firms", published in "Quality" in 1984, Dale said he would similarly request an erratum acknowledging the work of D. A. Hare.

In "Quality Circles in the UK, their extent and growth", proceedings of the First National Conference National Society of Quality Circles, London, 1983, he said when presenting the paper he verbally acknowledged the work of T. S. Ball (Theresa Ball, another former research student) and brought to the attention of delegates a joint paper by the two.

In the memorandum Dale said that in a paper accepted for publication by *Long Range Planning* and *Quality of Working Life Journal* he would acknowledge Ball's work. He would also include R. H. Powley as a coauthor of papers accepted by the *Journal of Purchasing and Materials Management* and the *Journal of Physical Distribution and Materials Management*.

Dr Dale also contacted Mr Brown who wrote to say he was disturbed that Mr Coyle had criticized Dr Dale's role as supervisor.

The facts were, said Mr Brown, that Dr Dale had suggested that quality circles would be a suitable topic for a dissertation. Dale and Brown had interviewed jointly, on two occasions, the facilitator (a company representative who coordinates the work of the quality circle).

Dale, said Brown, had negotiated the research access to five companies that formed the basis of the dissertation. Dale had carried out research interviews with two key staff at two companies and had spoken to plant management and Quality Circle members at another.

Valuable background information and research methodology was handed to myself... I felt that you (Dale) took an extremely active part in the research and undertook a considerable amount of groundwork before I commenced my dissertation," Brown wrote to Dale.

He said Dale offered to write a joint paper with himself, Brown, from the dissertation results but Brown declined due to lack of time and change of personal circumstances. But he gave his approval "to publish papers from the dissertation" and he left various notes with Dale.

According to Brown, Dale is a "first class tutor/supervisor". Mr Brown declined to talk to *The Times* but referred inquiries to Dr Dale. Dr Dale told us he had asked for acknowledgements to be made in journals. But he declined to say any more or be interviewed, until he had spoken to the UMIST registrar, Mr David McWilliam.

The registrar said the matter was likely to be the subject of an internal investigation and that *The Times* should not publish anything which might prejudice this. He said he had advised Dr Dale not to speak to *The Times*.

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Japanese youth 'too pampered'

by Geoffrey Parkins

The Japanese government's recent white paper on youth says the generation gap between young and old has grown wider than ever, and the findings of recent surveys give rise to serious concern over the attitudes of young people.

The paper says Japanese youth is pampered, over-protected, over-fed, money-grubbing, self-interested, introverted, apathetic, lazy and lacking the sense of responsibility that has traditionally characterised Japanese society. And perhaps not surprisingly, most of this is attributed to the western culture that has poisoned the old values.

According to the survey, only 3.7 per cent of Japanese 18 to 24-year-olds intend to devote themselves to the wellbeing of their society, and while most said they wanted to be rich, very few were prepared to work hard for it. Unlike their parents who were willing to sacrifice to rebuild the country after the war, Japanese youth overwhelmingly rejects "hard work".

The survey indicated that the positive Japanese attitude to hard work (what the West calls workaholicism) will have almost disappeared within two decades. Young people are described as quite happy to live off the fruits of their parents' hard work and sacrifice.

So wide has the gap between generations grown that in many ways they seem to be from different races, with the taller, carefree, loud and immediately dressed youth taking the earliest opportunity to break away from their shorter, conservatively-behaved and modestly dressed parents. Eighty per cent of 18 to 24-year-olds



Yasuhiro Nakasone: promised return to traditional values

live apart from their parents. In the words of a Tsukuba University professor Japanese kids are nothing but "pampered brats".

The contents of the white paper simply reflect a long-held attitude to young people and progressive educational approaches. Many surveys and reports in recent years have said very much the same thing.

But the latest official criticism is significant because of the recent election of Yasuhiro Nakasone as prime minister. Mr Nakasone represents the views of the most conservative body of opinion in the education debate which is threatening to develop into a political confrontation with far-reaching implications.

Mr Nakasone made education his main domestic issue in the lead-up to the November 1984 election, and left no doubt that he would speed up

educational reforms. The reforms would consist largely in a return to the inculcation of traditional Japanese values, morality and culture. High on his list comes the teaching of patriotism and respect for one's parents.

Since the end of the war Mr Nakasone has led a movement which opposes the education system chiefly because he believes it was imposed from outside and reflects very little that is Japanese. Embodied within the education system is a foreign ideology which does not share in and has always been in tension with the core tradition of the nation.

In March 1984, a report from the Council on Culture and Education which stressed that while the post-war educational structure had contributed much towards the economic and democratic development of the nation, it had at the same time caused many undesirable social and cultural problems.

In particular, the western emphasis on the pursuit of freedom and rights had jarred badly with the core tradition which emphasised responsibility, obligation and discipline. The education system, the report said, had been the direct cause of juvenile delinquency, and a diminished respect for authority and the family.

Mr Nakasone's chief opponents, the Socialist Party have now been joined by the powerful left wing Japan Teachers Union whose chairman, Mr Ichiro Tanaka, claims that what Mr Nakasone and his supporters really want is the complete break-up of the existing educational structure and a return to "Confucianism".

Industry plugs the gaps in employees' education

Eight million adults in the United States have enrolled in training courses sponsored by commerce and industry, as companies try to fill the gap left by inadequate schools and colleges. This is the finding of a report released by the American Foundation for the Advancement of Teaching, which warns that traditional institutions may have to learn from the efficiency, flexibility, and clear sense of purpose of their new corporate competitors.

The report claims that \$40 billion annually is now being spent on company education programmes in America, and the facilities include more than 400 campuses, the largest of which is the Xerox learning centre near Leesburg, Virginia.

But the president of the Carnegie Foundation, Dr Ernest L. Boyer, warns that universities should not go too far in trying to ape their new competition. "The danger", he says, "is that in a bid for survival, higher education will imitate its rivals, that careerism will dominate the campus."

If that happens, higher education may discover that, having abandoned its own special mission, it will find itself in a context it cannot win.

The Carnegie Report, entitled "Corporate Classrooms", has been produced by Neil P. Eurich, a member of the foundation board. She is also senior consultant to the academy for educational development, a non-profit-making education planning group.

Ms Eurich claims that the proliferation of mechanical work in basic reading, writing and computation skills in industrial education programmes implies "an indictment of the schools" for passing out students who lack the fundamentals needed to perform well on almost any job. Such classes, she says, are run by about three-quarters of all major American corporations.

"Beyond basics, more and more companies are teaching analytical skills and critical thinking, and including such subjects as foreign languages, economics, psychology and algebra. The companies are doing a good job, but they should not have to be doing so much," Ms Eurich adds.

Most of the advanced corporate education programmes, says the report, were developed because no-

Students learn village life

More than 150 students from University Sains Malaysia (USM), Penang, are being sent on rural service in outlying villages as part of a new scheme to promote a broader social awareness and an appreciation of village life in university graduates.

The scheme, which commenced in November 1984, is being run by four university student movements, the USM Kedah Students Association, the Society Service Movement, the Perak Graduates Association and the Negri Sembilan Undergraduates Association.

Students give up part of their annual vacation to experience active community life and carry out services for rural people in remote villages in the states of Perak, Kedah, and Negri Sembilan. It is hoped that by engaging in service students will be reminded of their social responsibilities.

Bennett dashes loan hopes

from William Norris

WASHINGTON

Hopes that Guaranteed Student Loans might be protected from the Reagan administration budget cuts faded last week when the prospective Secretary of Education, William J. Bennett, appeared before the Senate subcommittee considering his confirmation.

Asked for his view on the proposal to limit subsidised loans to students whose parents earned less than \$35,000, Mr Bennett said that though he agreed with the principle that any student qualified on merit should be able to go to the university of his choice, "it is simply beyond the realm of possibility in the present budget circumstances."

Mr Bennett added: "My own visceral inclination would be to say that we should help those who are most in need. Those who are the poorest. This will mean a hard impact and difficult circumstance for those who are at the middle level, or just below the middle level. But I think that if there are limited dollars, those who are the poorest should be helped first."

Any remaining doubts about Mr Bennett's confirmation as secretary were removed when the subcommittee chairman, Senator Orrin Hatch, received a letter from President Reagan announcing that he now has no plans to abolish the Department of Education. The subject had formed a major part of Mr Bennett's examination, and he had fended off questions by saying that he would carry out President Reagan's request to study the possibility, but thought that there were more important things to do. The issue now seems to be closed.

Senator Edward Kennedy, a member of the subcommittee, remarked: "The president has wisely thrown in the towel in his foolish four year battle to abolish the Department of Education. The key question now is whether the administration will permit the department to play its rightful role in improving American education."

Mr Bennett's nomination was unanimously recommended by the subcommittee last Friday, and was expected to be confirmed by the full Senate this week.

Institute pioneers course

from Geoff Maslen

MELBOURNE

A pioneering offshore degree course for Asian students, costing Aus \$20,000 a head, starts this month at the West Australian Institute of Technology.

It will be the first time an Australian Institute of higher education has offered an external degree which is to be run almost entirely in a foreign country.

Thirty-four students in Singapore have enrolled for the bachelor of business degree course at WAIT. They were selected from 400 applicants. The enthusiastic response means the institute is confident it will have 100 Singaporean students enrolled within three years, as well as others studying for a new master of business administration degree.

This will be the first time in more than 10 years that undergraduate students enrolled in an Australian institute of higher education have been charged fees. The Whitlam government scrapped fees for undergraduates in 1974. Under the Commonwealth States Grants (Tertiary Education Assistance) Act, tertiary institutions are not permitted to charge tuition fees for first degrees.

The West Australian Institute has circumvented this by having the Asian students pay their fees through the institute's alumni association in Singapore and a management institute which will organize the tutorial programme. Students will meet weekly with Singaporean tutorial staff - all graduates of WAIT or with connections with the institute - at the alumni association's premises on the island.

The association will take 5 per cent of the fees and the management institute 10 per cent. The remainder will be paid to WAIT. Although this arrangement appears to be in contravention of the states Grants Act, the federal government and the Tertiary Education Commission, which administers Commonwealth grants, are believed to be quietly supportive.

It is understood that the Commonwealth would have preferred the institute to have waited until the government announced its policy on overseas students.

There was stiff competition for the course from some of the world's top business schools, including a dozen British universities and half a dozen American institutions, among them the Cranfield Institute of Technology and the University of Chicago.

Threat to freedom debunked

Complaints that buying and selling research poses a threat to academic freedom are based on a mythical idea of the idealized scientific community, according to a book by science policy scholars published next week.

The book, a collection of essays drawn from a recent conference in Sweden, examines pressures on science from government, industry and the military. The authors agree that support of science for practical ends is nothing new. Ever since the scientific revolution, researchers have traded promises of practical use for sponsorship.

Today, according to Professor Jean-Jacques Salomon of the Conservatoire National des Arts et Metiers and a former policy adviser to the Organisation for Economic Cooperation and Development, "the search for truth is not really the objective of modern science". The scientist is simply one professionalized technician among many, devoted to extending knowledge whose meaning lies less in itself

than in its usefulness.

However, the contributors also agree that science is under pressure to meet new expectations, especially in universities. Professor Michael Gibbons of the Department of Science and Technology Policy at Manchester University argues that science and universities are both trying to do too many things without altering the form of their institutions.

Professor Emma Rothschild of the Massachusetts Institute of Technology writes that the main problem is a false link between science and economic growth. "She says governments should reject the view that links science to economic growth, not least because 'unfulfillable expectations of science as a useful factor of production may harm the scientific community itself'."

Science as a Commodity. Threats to the Open Community of Science, by Michael Gibbons and Bjorn Wittrock (eds.), Longman.

ACARD looks at the soft options

The Advisory Council for Applied Research and Development has begun a new study of computer software. The study, by a group under Mr John Coplin, director of design for Rolls Royce, will look at the development of advanced software engineering and recommend education and training measures to improve industry and business use of sophisticated computer programming techniques.

ACARD, which gives advice to the Government on applied research and technology to complement the work of the Advisory Board for the Research Councils, sees the study as a follow-up to an earlier report on advanced manufacturing technology.

The software study will tie in with an important segment of the Government's Alvey programme for advanced computer research, but ACARD will concentrate more on the use of software engineering.

Lack of key skills highlighted

Britain's greatest handicap in the industrial microchip race is lack of key skills, and the most vital need is for more technical training, according to a Policy Studies Institute report.

Surveys of more than 3,500 factories in Britain, France and Germany showed that Britain was behind Germany but ahead of France in using microchips in production or products themselves.

In assessing the difficulties of introducing micro-electronics, British factories surveyed said "lack of expertise" was greater than any other difficulty - more than ten times as difficult as convincing shopfloor workers and trade unions to accept them. Forty-five per cent of British factories thought "lack of expertise" was a problem, though this was still less than France (51 per cent) and Germany (55 per cent).

But the average British factory had considerably fewer engineers with microelectronics expertise than equivalent factories abroad. In 1981 British fac-

tories had an average of nine microelectronics experts while French and German factories had an average of 14. Two years later France's average had risen to 23, Germany's to 18 and Britain's to 15. British factories also claimed that they wanted fewer experts, ideally three against 20 compared with 24 in Germany and 29 in France.

Almost a third of British factories said they also wanted more employees with "microelectronic skills" now, though this was slightly fewer than in France. Programmers and those with general skills were most needed, but maintenance and fault diagnosis staff were also wanted.

Factories were more inclined to meet their needs for special skills by recruitment from outside than by training existing staff, the survey found.

Microelectronics in Industry - An International Comparison - Britain, Germany, France, £10, available from PSI, 11/2 Cable Lane, London SW17.

GLASGOW UNIVERSITY
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HAS SOCIALISM A FUTURE?
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Conference Theme: European Social Democrats attempt to regulate market economy within the world division of labour to the advantage of the working-class seem to have exhausted their promise and potential. Do the 1983 election results of Britain and Germany represent popular recognition of this? The USSR is widely regarded, domestically and abroad, as representing no 'mode' of socialism. It is at best a false idea. The Mises-Hayek thesis that socialism is impossible? Or on the other hand, does it vindicate the thesis of Marx that between the market and the society of freely associated producers there is no third way?

Socialist Political Strategy
LEO PANITCH
IMMANUEL WALLERSTEIN
BERTELL OLLMAN
NIGEL HARRIS

Transition from Market to Socialist Society
ISTVAN MESZAROS
ERNEST MANDEL
HELLE TICKTIN
MILTON FISK

Nature of Socialist Society
MICHAEL BARRATT BROWN
MICHAEL LOWY
G.A.E. SMITH

Socialist Society and the Market
RICHARD B. DAY
ALEX CALLINICOS
SIMON MOHUN
DIANE ELSON

Philosophy of Socialism
CHRIS ARTHUR
ANDREW GAMBLE
TED NINNIS
SCOTT MEIKLE

Crisis of Social Democracy
SIMON CLARKE
A. GUNDER FRANK
GEOFF FILLING
JAMES PETRAS

For further details and registration form please write to: Conference Organiser, Centre for Socialist Theory & Movements, c/o Philosophy Dept., Glasgow University, Glasgow G12 8QQ, UK.

from William Norris

US poised for legislation

WASHINGTON
Crunch time for higher education in America is rapidly approaching on Capitol Hill. For the past 20 years the system has operated under the Higher Education Act of 1965, which authorized six major student aid programmes, and dozens of schemes to provide federal money for a wide range of activities - from college libraries to international education for disadvantaged students. That act runs out this year. If these programmes are to continue, Congress must renew the law.

For those in charge of universities, both public and private, the expiry of the 1965 act could hardly have come at a worse time. True, they have a year's breathing space under another piece of legislation which would give continuity through the academic year of 1986/87, but since the Reagan administration will run until 1989 that is cold comfort.

Mr Reagan has made no secret of the fact that he wants to cut federal aid: last year the office of management and budget announced that the administration would seek to reduce assistance to higher education "until it is one third below its peak level".

Nor will they get much comfort from the president's direction to William J. Bennett, his still-to-be-confirmed secretary of education, to study the responsibilities and organization of the

education department, with a view to eliminating the department and reducing the federal role in education.

It is against this background that the colleges are preparing their case for the House subcommittee on post-secondary education, which is due to begin hearings in May on legislation to replace the 1965 act.

Traditionally, the public and private sectors of the university community have not seen eye-to-eye on the question of student aid. There was a typical split last year over a proposal to drop the limitation on Pell grants for needy students, which currently restricts them to a maximum of one half of their educational costs.

The private institutions objected to this, arguing that if the half-cost provision was dropped, more students would be encouraged to attend lower-priced public institutions, since the grants would then cover a higher proportion of their expenses there.

Now it is recognized by both sides that such internecine warfare must cease. Against the common threat posed by Mr Reagan, nothing short of a united front is going to be much use, especially when the bill eventually goes to the Republican-dominated Senate.

Many college presidents are now

adopting a pragmatic approach, willing to settle for legislation that would preserve the existing structure of higher education and "fine tune" some complex areas of the law. Recognizing that there is unlikely to be any more money available, they are going to have to struggle to preserve what they have.

The cost of a college education in the United States has been going up like a rocket. Since 1980/81 the average cost of attending a four-year private institution has risen by 52 per cent, and the cost of going to a public institution has jumped 40 per cent. These increases are well in excess of the rate of inflation over the same period.

The only encouraging feature of the present situation is the fact that grant aid to students from individual states, as opposed to the federal government, is actually going up. In the current financial year grants totalling \$1.4 billion will go to 1,600,000 students: the vast majority to those in need. On average, the states are increasing their assistance by about 17 per cent, with 15 of them reporting a growth rate of more than 25 per cent.

Democratic Congressman William D. Ford, who is expected to become chairman of the House subcommittee

on post-secondary education, has already called on both the education department and 135 higher education organizations to submit recommendations for the drafting of the new bill. Their respective lines of attack are now becoming clear. On the administration side there will be an attempt to reorganize the student aid programme into one work-study scheme, one loan scheme, and one grant scheme. The department will also seek to create a merit scholarship plan for academically talented students.

Many college presidents and representatives of education groups are suspicious of the latter idea, fearing that it could draw money away from students in financial need. For their part, they want to see an increase in the limits on Guaranteed Student Loans for both undergraduate and graduate students, to keep up with rising tuition costs.

The colleges will be looking for some balance to be struck between loans and grants, with more emphasis on the latter for needy students. There is concern that many students are accepting debt burdens which are far too heavy - a view borne out by newly-released figures showing that some 11 per cent of former students

are in default on repayment of their loans, and are being pursued by the authorities.

Also high on the educators' shopping list will be an increase in funds for graduate research facilities. Judging by the latest piece of creative accounting to come out of the office of management and budget, which will make a drastic cut in the number of new awards for bio-medical research next year, this may be a case of whistling in the dark. More money for research, unless it is for defence purposes, is not the name of the game in 1985.

They may have more luck in a plea for a bigger share of the grant and loan cake to go to minority, non-traditional and part-time students. These are expected to make up the fastest-growing segment of the undergraduate population in the coming decade, but at present they receive relatively little of the money which is currently going in federal student aid.

Despite its importance, there is little prospect that the new Higher Education Act will get through both houses in the current session: Congress will be too obsessed with the overall budget and tax reform. It will be 1986 before the measure gets on to the statute book, which means that the debate-the-scenes battles will be protracted, and probably bloody. Three months before Mr Ford's subcommittee is due to sit, the first shots are being fired.

Speaking up for the silent

David Jobbins looks at the British attitudes towards animal experimentation and its control

Laboratory animals have no voice in the raging controversy over their use in experiments behind the locked and secure doors of Britain's university animal houses.

But their naturally-enforced silence is more than compensated for by the competing claims of dedicated scientists and the anti-vivisectionists of the Animal Liberation Front.

While the argument between the extremes over whether animals should be used in experiments under any circumstances, or whether the spirit of free inquiry should be restricted in any way, the Great British Compromise is steadily approaching.

A supplement to last year's White Paper on animal experimentation is expected within a few weeks, setting out ministers' responses to the representations made over the past eight months by academic and commercial interests.

Speaking to the Royal Society of Medicine, the Home Office minister responsible for new legislation to replace the 1976 Cruelty to Animals Act, Mr David Mellor spelled out the Government's aims emphatically: "It is not the aim of the White Paper and the new legislation to bring the whole or even a large part of biomedical research grinding to a halt. If it did, the simple means of doing so would be to prohibit altogether painful procedures using animals."

The aim is... to give better protection to animals used in scientific procedures without prejudicing the benefits to man and animal which flow from the use of animals, and better protection for science by reforming existing controls and restoring public confidence in them."

Restoration of public confidence is in essence the Government's main objective. People are suspicious, whatever scientists tell them, of an Act of Parliament more than 100 years old drawn up to deal with different questions of animal experimentation and a tiny proportion of the current level of experimentation, decreasing though it may be.

Mr Mellor made clear to his audience that by pressing ahead with what some scientists regard as needless and possibly excessively bureaucratic extension of classic nineteenth century regulation by inspectorate, it was not giving in to the militants.

But, he said, the concerned public, who accepted the need to use animals felt the delicate balance between pain and suffering on the one hand and benefits on the other had gone wrong.

That restoration of public confidence is at the heart of a pioneering initiative by a group of academics and others based at Liverpool University. Many of these scientists actively engage in areas where the use of animals is commonplace, and they became increasingly concerned at the polarization in the debate between the extreme anti-vivisectionists and some elements in the academic community who were fearful of encroachment on their right to take their own decisions on experimental protocols.

This polarization meant that important issues crucial to the restoration of public confidence have become virtually impossible to debate rationally, leading to an impasse that members of the group feel is damaging to the image of the universities in general - because they are based there - Liverpool in particular.

In its pitch for the middle ground the Liverpool Animal Ethical Group has established the precept that the welfare of animals used should be considered to the same degree and depth as the potential benefit expected.

Pain and suffering should no more be tolerated in animals than in humans and the group is dedicated towards progress on the Three Rs, the dictum established by the Fund for the Replacement of Animals in Medical Experiments.

The three Rs are self-explanatory - Replacement, Refinement and Reduction - but they encapsulate the gradualist approach of the LAEG and its associates.

The group has set itself two broad aims: the first is to raise awareness of ethical issues among animal users, both within Liverpool University and elsewhere. The second is to improve the quality of public debate on the issue by bringing the scientists and general public together.

Since the group was founded in 1983 it has staged a series of lectures and seminars, culminating in a highly successful two-day symposium last term.

One of the group, Mr Norman Marsh, commented: "We wanted to show the university administration it is possible to air the issue without having riots. Part of the intention was to show it is possible to discuss these things publicly."

The seminars and symposium attracted people from both sides of the fence - but not the smallest hint of a riot. Liverpool has been the subject of attacks by militants - in common with many other universities - and the group has been careful not to get involved with the extremists.

Although not officially recognized by the university, the group believes it is establishing the confidence of the administration, and had developed a useful dialogue with the former vice-chancellor, Professor Robert Whelan, until his death last term.

Professor Whelan, himself a medical man, listened to the group's ideas with interest and, it is said, accepted the logic that if ethical committees existed to review experimentation on human subjects the same process should be extended to animals.

Informally he suggested that the obvious way forward would be for an ethical committee to be a subcommittee of the university's research committee.

This has yet to become a formal proposal and is likely to meet with resistance from some sections of the academic community in Liverpool. The group is working hard to overcome the initial suspicions, and its members state firmly that its origin at Liverpool was an accident of personal chemistry rather than a reaction to the experimental practices carried out in its animal houses.

But the deepest suspicion derives from its view that the ethical committees, perhaps on the Swedish pattern which so impressed its founders, veterinary pathologist Dr Susan Haywood, and veterinary parasitologist Dr David Britt, is the way forward.

The committees were pioneered in Sweden nine years ago by medical physiologist Professor Karl Obrink and made mandatory throughout the country three years later.

Under the Swedish system, experiments which involve pain or indisposition to conscious animals are subject to scrutiny. Limited "intrusions" such as injections, blood sampling, observational or feeding experiments are not subject to review, nor are experiments carried out under general anaesthesia from which the animal does not recover.

The process, according to Dr Britt, is highly informal and takes place in the proposer's laboratory, with advice offered on modifications.

The lay factor has certainly created problems in Sweden, a point acknowledged by Dr Britt. Committee anti-vivisectionists on the committees have been able to block proposals in their determination to end all animal experimentation, something he fears fuels the criticism of academics in other countries who are anxious to discredit the idea.

But despite the problems in Sweden, Dr Britt believes that enough has been learned from experience in that country and Canada and the United States, to introduce ethical committees in the UK.

If the committees are established we will still not appease the extremists," he says. "But we can win over the centre ground of public opinion and persuade them that scientists are responsible and caring individuals who do not wittingly use animals unnecessarily or brutally."



Members of Lancaster's secret dining club, "The Belle Tout". Author William Smethurst is top left.

Days of wine and Lancaster roses

"Do the professors," I asked, like Rupert Brooke enquiring about honey and clocks at ten-to-three, "still invite first-year students round to their homes for sherry?" Vice-chancellor Philip Reynolds looked startled then said he didn't expect so, and I was sad but unsurprised. My university, I knew, had passed through troubled times. "Sit-ins" and sherry cuts in the national budget for higher education might well have put Harvey's Fino beyond the pocket of many a professor.

In this case, it emerged, nasty student manners were responsible. Sherry parties had died out, Professor Reynolds believed, when a high proportion of students couldn't be bothered to turn up at them or even reply when invited to do so.

In my day we were happy to sip sherry with our senior lecturers, nibble their cocktail biscuits, and take an interested look at their domestic life. Professor Reynolds, as head of the politics department, had entertained me thus at his Lancaster house exactly 21 years ago.

There were 300 of us when the university opened in 1964, all supremely conscious of being at a new university, proud (at first, anyway) of our gowns of Quaker Grey and Lancaster Red, delighted whether we studied them or not, of being at a university with departments of "operational research" and "marketing", and happily resigned to long hours in committees, thrashing out junior common room constitutions and worrying over designs for college scarves and ties.

We were very aware, too, of other new universities: York, Essex, and Sussex in particular, and spent a lot of time visiting them and swapping notes. At the end of the first academic year Lancaster's student news magazine *Carolynne* commented: "If New Universities have anything in common, it is perhaps a habit of constant introspection. There is an awareness that traditions are being formed, and a compulsive desire to inspect the roots of what is being created..."

Carolynne also commented, bitterly, on the fact that Essex was celebrating its first year with an up-market June Ball, while Lancaster could only manage a hop with three beat groups. Beat groups, mind you, were considered fairly interesting in 1965.

Lancaster had its formal ball in the Michelman term, and for weeks beforehand the national press was affixed to discover which student would be the first to dance with Princess Alexandra and the president of Bowland College was reported to be taking lessons in ballroom dancing. Socializing of a more minor nature was also prominently featured in the student press. "A little bit of what you fancy" Miss Florence Barron promised the guests at her birthday party last Friday, and with commendable foresight provided enough beer and spirits to support the Channel Fleet on a long cruise... and looking back it's

NEW UNIVERSITIES



William Smethurst (above) asks if there is sherry still for tea at Lancaster University

clear that we all lived in primeval darkness when it came to the question of feminism. "The motion to ban women from the JCR was defeated by only 11 votes. The motion was proposed by Mr Brian Arnold who called women illogical and untidy, and said that they contributed nothing to intellectual conversation."

Carolynne, years ahead of its time, had a pin-up girl on page three of every issue. Our girl of the month is 18-year-old Kate Martin-Hall, a minister's daughter from Horsham. Kate says her favourite things are singing in the bath, eating, and the vice president of the Athletic Union.

But not necessarily in that order! And there she is, modestly showing her knees as she clings to a bit of monumental stonework outside Lancaster Castle. On the opposite page of the same issue (June 1966) is a report that shows how good-natured we were when it came to politics and the police. "Sunday saw 30-odd students gathered at the Battery, Morecambe, ready to march about Vietnam. Over the road Chief Inspector Frank Wright lurked in a Vauxhall Viva, round the corner were two cars full of plainclothes detectives, and at a discreet distance Superintendent Tooke was heavily disguised in blazer and sunglasses."

In October 1966 arts students moved to the new campus at Bailrigg, abandoning the old converted furniture factory in St Leonardsgate, the Congregational Church, and the musty old Grand Theatre. A change of place brought a different atmosphere, and because the university was growing different people. Student politics seemed suddenly more aggressive. There were people who shouted about things, seemed angry for no clear reason, and paid no scant honour as pioneers of a brave new university.

I wondered, going back, if perhaps they might have changed again. In October 1964 students had voted to support Alec Douglas Home's Tory government. Are the students of 1985 rooting for Maggie Thatcher?

"Certainly not," said student union president Bob Newton, but went on to say the Government was disliked because of cuts in higher education spending rather than its broad policies. "Students are more to the right than they have been for many a long year," he added. "We debated the miners' strike last term and voted by more than 100 votes not to support it."

Professor Reynolds, for his part, is proud of the university's energy saving programme. An investment of some £600,000 has brought about a massive saving every year, enough to pay the salaries of 36 members of the academic staff. Then there's the money put up by the industry for research, and the cash brought in by foreign students (Lancaster has been particularly successful in both areas) and there's the cash generated by running campus holidays in the summer. "You'll find us helpful, friendly and courteous, because we're proud of our beautiful location and splendid facilities," says the brochure, "and we like having visitors."

And walking round Bailrigg in the January sunshine it does seem a remarkably civilized and relaxed sort of place, as beautiful, architecturally, as it always promised to be, and full of busy people who seem happy to be there. The bitter years of student militancy - "you didn't feel safe from physical assault," said Professor Reynolds - are long gone and the rude shock of Government spending cuts has been survived. "There's been a return of courtesy and good manners," added the vice-chancellor, leaving me to wonder if sherry parties for first-year undergraduates might soon be on their way back, and pictures of pretty girl undergraduates may soon grace the cover of *SCAN*, the student newspaper of today.

The author was at Lancaster University from 1964 to 1967. He is the editor of *The Archers* on BBC radio.

Science switch bid to halt Kenyan jobs crisis

from Wachira Kigotho

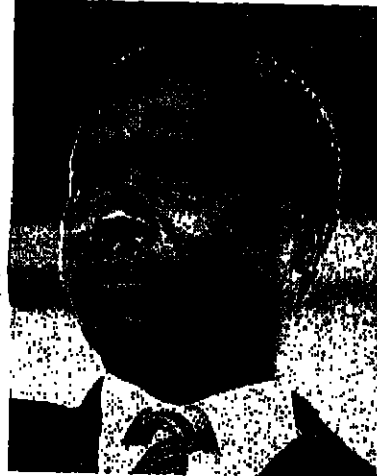
Kenya will no longer sponsor students interested in taking arts-based studies in foreign universities abroad. Announcing the government decision the permanent secretary in the ministry of education, science and technology, Mr Leo Odeh, said that the move was meant to encourage more students to undertake science subjects more seriously.

He said that the time had come when Kenya should pursue physical sciences, medicine, mathematics and agricultural science. The trend would make the country self-reliant in certain areas that are currently under the direction of expatriate personnel.

Nevertheless, the government will allocate funds to those who will enrol for arts studies locally at the University of Nairobi or its constituent Kenyatta University College that offers both arts and science education degrees and diplomas. According to education officials in Nairobi, the government of President Daniel arap Moi would like the students to take studies that would enable them to attain employment easily. So the move was seen as a measure to curtail enrolment on arts courses whose job market is near saturation.

Recently Kenya has been facing an employment crisis of university graduates, most of whom have been trained in India and Pakistan. The sudden move to Indian universities was precipitated some years ago after many school leavers failed to obtain placement at the local universities.

In an attempt to reduce the problem, President Daniel arap Moi has directed the public service ministries and parastatal organizations to absorb all graduates within their swelling ranks. Although the move tended to solve the situation and was praised by labour unions, it was, according to



President Moi: employment move

critics, a temporary one hence the curbing of chance to those who would like to take their degrees in Europe or the United States.

In encouraging the students to take keen interest in sciences the government has already opened a second university at Eldoret, 300 kilometres from Nairobi, specializing in environment conservation, wood technology and wildlife management. According to the vice-chancellor of the young Moi University, Eldoret, Professor Douglas Odhiambo, the aim of the college is to produce "practical graduates who in course of their training will be in touch of the problems in the rural areas".

Professor Odhiambo adds that the government would like to see the higher institutes of education in Kenya being engaged in scientific research geared to the development of the rural areas. He says that such educated people were more helpful to the welfare of the nation as they would replace the expatriates holding such positions in the country.

Nicaraguan abducted

by Richard Lapper and John Bevan

There are fears for the life of a leading Nicaraguan academic following his abduction by United States-backed counter-revolutionary guerrillas last month.

Dr Santiago Sequiera Pena, the deputy dean of the medical faculty at Nicaragua's Autonomous University, was kidnapped by Contra forces in the Rama Cay area on the Atlantic coast on January 26. Along with his abduction, a nurse, also from the university, Dr Sequiera was working on a programme to evaluate the health care needs of the indigenous inhabitants of this remote and isolated region, when Contra attacked the medical team.

Government defence efforts in this

area are hampered by poor infrastructure - Rama Cay is five hours' boat ride away from the nearest road - and the *Contras*, who travel in high speed launches, have been able to attack civilian and economic targets with relative impunity. The abduction is almost certainly linked to Costa Rican-based units of the biggest *Contra* organization, the so-called Nicaraguan Democratic Force (FDN), which was responsible for the kidnapping of a Nicaraguan government official last autumn. The victim of that capture, Dr Ray Hooker, was released following widespread international protest.

Ai, dean of the university, said: "There have been meetings of all the people involved in the university, and we are determined that the work must go on."

Social science fears in Lithuania

Social science teaching in the Soviet state of Lithuania is causing Communist Party leaders some anxiety. Many of the lecturers lack proper qualifications, textbooks are for the most part, out of date, and a number of instructors deliver their lessons from notes "which have turned yellow with age".

Such were the criticisms in the report delivered by Mr Petras Griškevičius, first secretary of the Communist Party of Lithuania, to a meeting of Lithuanian university rectors, social science lecturers and university party and Komsomol activists.

Social science teaching in the Soviet Union covers not only specialist courses but also the compulsory lectures in Marxism-Leninism which every university student must attend (usually for three or four hours a week). In general, such courses are not taken very seriously.

Lithuania, however, poses a special problem to Soviet ideologues since, like neighbouring Poland, it has a long tradition of Catholicism which is still very much alive. Not surprisingly, therefore, the Griškevičius report paid special attention to the training of students in scientific atheism. It also suggests that in teaching the "historical superiority of socialism," more active use should be made of lecturers who have paid long official visits to capitalist countries.

The standard of education of the lecturers themselves must also be raised, the report recommends. Of the republic's 475 lecturers in social sciences, only 58 per cent of them have academic degrees and qualified persons are not evenly distributed. In Kaunas, which has several higher educational institutions, there is not a single lecturer with the degree of Doctor of Science, and there is a particular shortage of lecturers in Klaipeda and Siauliai.

So far, the only solution which has presented itself to the party has been the import into Lithuania of considerable numbers of young social sciences graduates from Moscow and Leningrad. The Griškevičius report warmly praised the talents of these newcomers as "prospective scientists and good teachers".

It did not, of course, mention their basic handicap: that they will have to deliver their lectures in Russian, not Lithuanian, and are therefore unlikely to endear their subject to young Lithuanians who (again like the Poles) see the Catholic church as the custodian not only of religious, but national traditions.

Finland predicts growth in graduate population

from Donald Fields

Helsinki
The annual intake into Finland's 17 universities will increase by about one eighth and the share of the population with an academic degree will rise from 4 to 5 per cent between now and 1990, judging by predictions contained in the ministry of education's latest development plan for higher learning.

The document underlines the fact that Finland, boasting economic growth that is both steady and above the average elsewhere in the Organization for Economic Cooperation and Development area, is one of the few European countries where expansion, however muted, remains the keynote.

There will, however, be some deviations from a growth pattern geared to the entry of 12,600 first year students in 1990. Virtually echoing trends in neighbouring Sweden, the master plan calls for cut backs in the medical and natural sciences. "There is a special need to increase the number of starting places in the technical, social and commercial sciences and the humanities," it asserts.

1986, focus for most of the report, will be a watershed year because the long term web of legislation governing higher education will expire. The ministry argues that most interested parties want a new all embracing act, though it is known that some academics view such an instrument as a straitjacket tailored for the purposes of civil servants.

Face-saving sentences for Yugoslav dissidents

Sentences of between one and two years in the trial of the "Belgrade six" suggest that the Yugoslav authorities have tried to extricate themselves from an increasingly embarrassing situation.

Mr Miodrag Milic received two years imprisonment, Mr Milan Nikolic 18 months and Mr Dragomir Oluic one year. The maximum sentences on the eventual charge were 10 years and on the original conspiracy charge 15 years. All three are to appeal.

The six had been reduced to three after the dropping of charges against Mr Pavlovic and the post-ponement of proceedings against Mr Gordic and Javankovic. On "health grounds" and Mr Vladimir Miljanovic (who failed to turn up in court).

According to the prosecution, defendant Mr Miodrag Milic and Mr Dragomir Oluic had no qualifications for academic work, being "students who had not completed their studies". The "incriminating texts" which they produced for the seminar were thus

The remaining defendant, Mr Milan Nikolic, said Mr Nanovic, was particu-

larly culpable, having presented a term paper critical of the present situation in Yugoslavia as part of his PhD work at Brandeis University in the USA.

Such catch 22 situations were a frequent feature of the trial. Defendants repeatedly tried to have read into the records the full texts of the "subversive" documents they were alleged to have written or had in their possession. Summaries and extracts they claimed, could give a false impression and thus would not serve the cause of justice.

The prosecution and the judges, however, objected not only because of the length of the texts, which included among other works, Orwell's 1984, but also on the grounds that reading them aloud in a public court would further disseminate hostile opinions.

Likewise, the fact that almost half of the 90 prosecution witnesses refused to testify under article 229 of the law on criminal proceedings (Yugoslavia's equivalent of the fifth amendment in the USA) was interpreted by the prosecution as conclusive evidence that the meetings of the seminar were illegal.

THES peer review

This fourth survey of "best" departments in universities and polytechnics covers four disciplines - law, classics, mathematics (pure and applied), and materials science.

All, as usual, presented difficulties of demarcation. Classics are increasingly split between Latin and Greek and classical studies; mathematics have always been separated into pure and applied, plus a lot more; in law there is the special problem of Scots law; and materials science is a fuzzy discipline.

Nevertheless the response was as good as in previous surveys, despite deliberate attempts in mathematics and in polytechnic law departments to discourage replies.

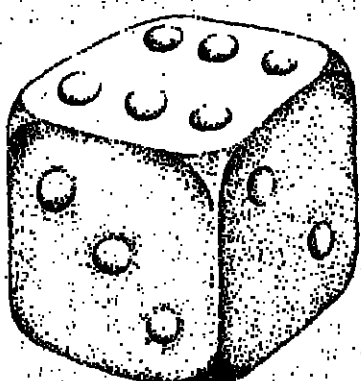
Nine questions were asked. There was also a

Ask a dozen lawyers the same question and it is said that you will get a dozen different answers. That certainly seems to be true where the teaching of law is concerned, since no fewer than 16 different departments were nominated as the best in the country in our peer review.

No such confusion exists over research, however. Oxford stood out at the top of the list, well ahead of Cambridge and with almost twice as many points as the third-placed London School of Economics.

The rankings are complicated by the separate legal systems in England and Scotland, reflected in a completely different curriculum north of the border. As one respondent put it: "Because of the different legal systems of Scotland and England faculties and departments of law in Scottish universities are not in competition with those in England and conversely. We draw almost entirely from Scottish schools and our graduates go almost entirely into the Scottish legal profession."

As a result, most of the responses from Scotland consider only Scottish departments and it is probable that most of those from England and Wales are similarly restricted, although Edinburgh still shows well. All responses have been included in calculating the rankings, but the positions of the Scottish departments will have been boosted by the fact that there are only five to choose from.



MATHS

Mathematics presented almost intractable problems of definition, although the University Grants Committee does get by with only two classifications: mathematics and mathematical physics. One respondent added in a footnote: "Perhaps you think that one questionnaire will do for a small subject like classics, and for a huge one like mathematics."

This was a sentiment echoed by many. One reply from a university with an unchallengeably high reputation in mathematics simply stated: "There is no justification for using vague opinions to further distort the educational process in this country." A London professor wrote to the length of writing a round-robin to his colleagues in other institutions urging them not to cooperate with the survey.

The difficulty arose from the traditional division of mathematics into pure and applied, a division that is normally enshrined in separate departments especially in universities. But in recent years the picture has been further complicated by the growing importance of statistics, operational research, numerical analysis and so on.

Within this growing complexity the number of possible combinations has proliferated. In universities applied mathematics have often been linked with physics and pure mathematics with statistics. But in polytechnics applied mathematics have often been more closely associated with engineering and computing. Then a lot of

Of course, there are other differences in the curricula of law departments which have also caused difficulties for those seeking comparisons. One university professor wrote: "Law teaching today varies enormously from place to place. To ask what is the 'best' depends very much on what approach one might adopt and opinion here is greatly divided. Warwick, for example, specializes in 'law-in-context' and adopts a social-scientific approach to law. Newcastle has pioneered economic analysis of law. Oxford is on the whole specialized in law and philosophy. This fairly recent specialization makes the question 'What is best?' depend very much on the area that interests a particular individual or applicant."

Others had no such inhibitions, despite acknowledging the different strengths of various institutions. "With the exception of the top five or six law schools in Britain, there is very little to choose between the rest, polytechnic or university," the head of one polytechnic department maintained. "In terms of publication output, nobody I think would dispute that the very best polytechnic law schools (Trent, Leicester, Manchester and Bristol) are much superior to the worst university law schools (Keele, University College Wales, Essex and Belfast)."

The polytechnics were among the most modern law schools, pioneering the use of computer technology, and had also had a big hand in changing the

Difficulties of demarcation

space for further comments and many of those who replied also wrote accompanying letters. 1. Which in your view are the five best departments in British higher education in your subject, bearing in mind mainly the output and quality of their research? 2. Which in your view are the best five departments in British higher education institutions in your subject, bearing in mind mainly the quality of their teaching of undergraduate students? 3. How much external funds in terms of

research grants and industrial support did your department attract over the past three years? 4. In the last five years how many books and articles have been published by members of your department? 5. How many members of academic staff does your department have at present? 6. How many did it have in 1979? 7. How many of the present staff are in permanent posts? 8. (For English and Welsh universities and polytechnics.) Can you please give some

indication of the average A level score of undergraduate entrants to your department? What was the highest score of a successful candidate, and what was the lowest score in the past three years?

9. Excluding your present department, in which department would you most like to hold an academic post - in Britain? In the rest of the world?

Previous surveys have covered history, French, economics, politics, civil engineering, architecture, physics, chemistry, biological sciences, English, and management and business studies. A reprint of these previous surveys is still available.



LAW

appearance of legal education in Britain, he claimed. Only Oxford, Cambridge and London could claim an international reputation and a number of American law schools were now superior.

However, this will be no consolation to the queues of students still struggling to meet stringent entry standards. While some polytechnic departments showed an average A level score as low as six points (the equivalent of three Ds), an average score of 13 points or more was common in the universities. The only hope for those with poor A levels would appear to be computer error - one university admit-

ted to taking one candidate with a score of three points (compared to its average score of 12) because it felt obliged to honour an offer made by mistake.

Law departments generally seem to have escaped the cuts, although there are exceptions among the polytechnics. Most university departments have remained roughly stable and both Strathclyde and Lancaster have doubled the size of their admittedly small departments since 1979. The size of departments varies widely, with some in Scotland having as few as two staff compared with Oxford's 58.

Few departments have much external funding, as one might expect given the nature of the subject. However, Oxford's two research centres have brought in £250,000 in the past three years and Queen Mary College, London, tops the list with external support worth more than £1 million.

Predictably enough, Oxford and Cambridge would be the first choice for alternative employment among most respondents, while a variety of American universities (especially Harvard) were the ideal for those with wider horizons. However, there were more individualistic choices, such as University College, Cork.

One university professor could find no other British institution he would favour - "all equally dismal". His preferred destination was the United States "where academic lawyers are realistically remunerated".

more confused. Cambridge and Oxford came top but there seemed little consensus about which other universities and polytechnics were also highly regarded for mathematics teaching. No doubt an important reason was summed up in this comment: "It is clear that certain individuals think hard about their teaching and others are quite barbaric, and the good ones are spread between several universities."

There was particular confusion about the reputation of the polytechnics. Polytechnic heads of department regarded the teaching achievements of their sector highly and this is reflected in the rather ragged ranking. Their confidence was to some extent supported by the wide gap in ability between university and polytechnic students. Most universities required students with A level scores of 12 or 13 (and 14.5 in the case of Cambridge), while most polytechnic students entered with scores of between five and seven.

The external funding of research was a shaky measure of departmental reputations. So much depended on the kind of mathematics in which a particular department had strengths, but as a rough rule of thumb the more computing, the more money.

Cambridge's department of applied mathematics and theoretical physics has attracted almost £1.3 million of external support in the last three years; Oxford's mathematical institute more than £500,000 and Warwick, which has the largest graduate school in the discipline, £385,000. But Plymouth Polytechnic attracted in the same period more than £250,000, much more than many universities.

The United States seemed to be the mecca for British mathematicians. Stanford, Wisconsin, Caltech, Massachusetts Institute of Technology and Berkeley were among the favourites. In other parts of the world Louisiana, Paris, Rome, Tokyo, and Monash were mentioned. At home the overwhelming choices for an alternative base were not surprisingly Oxford and Cambridge. This survey was based on 34 complete replies, a further six contained useful information.

Teaching rank

1. Cambridge	39
2. Oxford	29
3. Coventry Polytechnic	21
4. Teesside Polytechnic	21
5. Brunel	15
6. Hatfield Polytechnic	12
7. Bristol	11
8. Edinburgh	8
9. Manchester	7
10. Leicester Polytechnic	7
11. Southampton	7
12. Loughborough	7
13. Bath	7
14. Warwick	7
15. Imperial College, London	7

Also mentioned: Plymouth Polytechnic, Reading, Cardiff, Bradford, Newcastle Polytechnic, Portsmouth Polytechnic, Polytechnic of the South Bank, Glasgow (5); Open University, Sussex, UMIST, Strathclyde, Aston, Salford, Surrey, Aberdeen (4); Nottingham, University College London, Hull (3); Liverpool, King's College London, Queen's Belfast, City (2); Polytechnic of North London, Durham, Harlow, Watlington (1).

mathematics has continued to be done in non-mathematics departments such as physics, astronomy, and different branches of engineering.

Another dimension of difficulty has been added by the differences between universities and polytechnics. One polytechnic head of department commented: "Both the volume and eminence of mathematical research are certainly higher in universities, but there is also good and sometimes underrated research in polytechnics conducted by a minority of capable enthusiasts, usually working with limited time and resources."

But in his experience, teaching and course development were far better in

polytechnics. Another difference was that universities emphasized fundamental theory and polytechnics practical research. In the former applied mathematics were often confined to "precisely posed class of mathematical problems" in the latter there had been a strong development of mathematical modelling.

Yet for all this ambiguity the pecking order of research reputations seemed clear enough. Cambridge was out in front, in both pure and applied mathematics, followed by Oxford, Imperial College London, Warwick and Leeds. Bristol, Manchester and Edinburgh were also well regarded.

For teaching the picture was much

Research rank

1. Oxford	84
2. Cambridge	60
3. London School of Economics	47
4. University College, London	43
5. Edinburgh	33
6. Warwick	26
7. Glasgow	18
8. Manchester	12
9. Nottingham	12
10. Queen Mary College, London	11
11. Sheffield	10
12. Dundee	9
13. Strathclyde	9
14. Aberdeen	8
15. Exeter	8
16. King's College, London	8
17. Middlesex Polytechnic	8

Also mentioned: Birmingham, Kent, Newcastle Polytechnic (5); University College Cardiff, Leicester (4); Durham (2); Lancaster, Southampton, Wolverhampton Polytechnic (1).

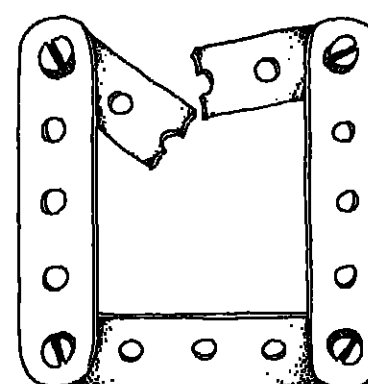
Teaching rank

1. Edinburgh	36
2. Cambridge	34
3. Oxford	32
4. Nottingham	22
5. Warwick	21
6. Glasgow	17
7. Sheffield	17
8. Aberdeen	16
9. Dundee	16
10. London School of Economics	16
11. Exeter	13
12. Leicester	13
13. Durham	12
14. Manchester	11
15. Southampton	11
16. King's College, London	11
17. Strathclyde	11
18. University College, Aberystwyth	7
19. South Bank Polytechnic	7

Also mentioned: Bristol, Newcastle Polytechnic (5); Lancaster, Manchester, Wolverhampton Polytechnic (4); University College Cardiff, Newcastle (3); Hull, Liverpool Polytechnic, Reading (2); Brunel, Essex, Trent Polytechnic (1).

● The law scores include returns from four Scottish universities which are restricted to Scottish departments. If they were included, Edinburgh would lose 19 points in each category and be placed sixth for both teaching and research. Glasgow would lose eight points and be placed equal eighth for teaching and equal eleventh for research. Dundee, Aberdeen and Strathclyde would all be placed lower in both lists.

The Scots' own rankings would place Edinburgh top for both teaching and research. Aberdeen would be a close second for teaching, followed by Dundee, Strathclyde and then Glasgow. Aberdeen and Glasgow would tie for second place in research, with Dundee and Strathclyde equal fourth.



Materials science

The broad spread of departments in metallurgy and materials science appears to have kept down the number of replies in this review, but a clear hierarchy still emerges.

With half the 28 university and polytechnic departments replying, five universities established clear supremacy in the rankings both for teaching and research. Cambridge was well ahead of the field on both counts and only two of the seven polytechnic departments attracted votes.

With precisely the same number of staff it had in 1979 (21), Cambridge has had the advantage of escaping the cuts which have afflicted some of its counterparts, but most have not fared too badly. Indeed, at one extreme, Queen Mary College, London, has been able to increase its academic staffing from seven to ten, and the largest of the departments responding (Birmingham) has lost only one full-time lecturer

Ranking departments in classics ran into two difficulties. First the discipline is dominated by three large aggregations of classicists, in Oxford, Cambridge, and London. Departments in many other universities tend to have only about half a dozen staff.

Second, classics has become two, arguably, three separate subjects - classics based on the study of Latin and Greek; classical studies based on the study of literature in translation, art, ancient history, religion and mythology; and in some universities classics has been combined with adjacent disciplines like archaeology and ancient history.

The first of these difficulties made it almost inevitable that the research ranking would be dominated by Oxford, Cambridge, and London (really University College and King's College in that order). Shorter weight of numbers told, although a non-Oxford professor in conceding the academic strength of these three centres wrote that they had "plenty of non-producers too".

The comparison between Oxbridge and London is also difficult. But there is some evidence that despite the eminence of staff in the former, the latter is a more productive centre. In London 147 PhD theses are in progress compared with 80 in Oxford.

After the big three the universities with the most solid research reputa-

er from its 1979 complement of 42. Others have not got off so lightly. Teesside Polytechnic, for example, is down from 13 staff to nine and Surrey University has lost 10 of its 16 academic research fellows as well as four of its 18 teaching staff. Not that Surrey's performance has slumped accordingly. It has increased its research income steadily to last year's figure of £1.16 million and claims a pass rate considerably above the national average, at 90 per cent.

Oxford is the leader in terms of external funding and research grants, with £2.5 million in the last three years, Cambridge following with £2.13 million. Every department responding to the survey had external funding of at least £40,000, Birmingham boasting £1.5 million.

Cambridge was much the most

Research rank

1. Cambridge	44
2. Birmingham	30
3. Oxford	29
4. Imperial College, London	28
5. Sheffield	20
6. Liverpool	13
7. Queen Mary College, London	10
8. Newcastle	7

Also mentioned: University of Manchester Institute of Science and Technology (5); Brunel, Cranfield, (4); Manchester, South Bank Polytechnic, Surrey (3); University College Cardiff, Leeds, Nottingham (2); Bath (1).

popular choice for those expressing a preference for another department in which to hold an academic post, although both Imperial College, London and Oxford had their admirers. Those looking further afield hankered after a place at the Massachusetts Institute of Technology, with Melbourne, Stanford, Berkeley and the Ecole des Mines de Paris all rating a mention.

The Oxbridge entrance system makes it difficult to judge whether

peer assessment of the various departments is reflected in the grades asked of applicants. However, in Oxford and Cambridge the average A level score of successful candidates (taking an A as five points and an E as one point) was between 13 and 14, compared with 11.4 at Birmingham. Most other universities were asking between eight and 10 points.

Teaching rank

1. Cambridge	37
2. Imperial College, London	28
3. Birmingham	27
4. Sheffield	27
5. Oxford	13
6. Queen Mary College, London	10
7. Surrey	9
8. Manchester	7

Also mentioned: Bath, Liverpool, University of Manchester Institute of Science and Technology, Nottingham (5); Brunel, University College Cardiff (4); Leeds, Newcastle, Sheffield Polytechnic (3).

David's College, Lampeter. Most classics departments seem to attract students with A level scores clustered round 10 points.

The second difficulty, that of defining classics consistently, also influenced the results of the survey. Most of the replies concerned classics in a tightly drawn traditional sense but some strayed over into classical studies and ancient history. Others again were confined to Latin and Greek separately. Some universities are strong in traditional classics like Leeds while Sheffield, its Yorkshire neighbour, has concentrated more on classical studies. So the overall results are inevitably a bit of an amalgam.

An unmistakable strain of concern about the future of classics came through in many of the replies. Many seemed to feel that the specific threat to classics posed by the scales of Latin and Greek in schools had now been compounded by the broader threat carried in the Government's negative attitude to all humanities. But not many went as far as the professor who wrote: "I simply believe on the basis of the last 12 years in post in a UK chair that UK classics are incapable of effective and constructive self-reform."

Figures on the number of staff in classics departments, incomplete as they are, suggest that one consequence of contraction in the last five years has been to reinforce the predominance of the three big centres in the discipline. Oxford, London and Cambridge have suffered fewer losses than the small exposed departments where more than 9 per cent of the staff in post in 1979 have been trimmed away.

These figures are especially significant in classics because many departments have so few staff and because research in the discipline tends to be highly individualistic. One professor explained that he ranked Exeter, Liverpool and Durham highly in research in Latin on the strength of the work of individual scholars in each of these universities.

Not surprisingly Oxford, Cambridge and University College, London dropped up again as the favourite British universities for classicists, apart from their own. But St Andrews, Bristol and Edinburgh were also favoured. Abroad, American universities had the most appeal - Harvard, Berkeley, University of California, Los Angeles, Princeton. In Europe, Basel, Cologne and Hamburg were preferred.

The tables are based on the 21 complete replies received. Other incomplete replies also contained valuable information.

Research rank

1. Oxford	92
2. London	74
3. University College, King's College	29
4. Royal Holloway/Bedford	14
5. Brunel	7
6. Westfield	4
7. Cambridge	7
8. Liverpool	15
9. Manchester	9
10. Exeter	9
11. St Andrews	8
12. Newcastle	8
13. Durham	6

Also mentioned: Southampton (5); Glasgow, Bristol (4); Leeds (3).

Teaching rank

1. Oxford	77
2. Cambridge	36
3. London	35
4. Brunel	18
5. King's College	7
6. Royal Holloway/Bedford	6
7. Westfield	1
8. Bristol	24
9. Newcastle	16
10. St Andrews	11
11. Exeter	11
12. Glasgow	8
13. Durham	8
14. Liverpool	6

Also mentioned: Leeds, Queen's Belfast (4); Manchester (2); Hull, Edinburgh (1).



Listen to the lecturer on the Huddersfield omnibus

When I have an early start or a need to clear my desk before a 9 o'clock lecture I travel to work by bus and train. Such journeys on public transport ought to be obligatory for us car-travelling majority in modern democracies. Not only are they a reminder of the levels and standards of public service on which many rely, they are an essential antidote to the atomizing and individualizing effects of the motor car.

On four wheels, cocooned inside our metal boxes, patient years of socialization are stripped away; we revert to a Hobbesian state of nature, aggression maximized and tempers flaring. The bus journey and the preceding wait at the stop leave us, by contrast, no choice but to mix again amicably with our fellow citizens. We are forced to sit beside, perhaps even talk to strangers, to people whom we do not know, to whom we have not even been introduced. The early morning 7.30am bus is an exercise in social cohesion, the closest thing to a closed community I have come across in years.

If the pressures which created the witch crazes ever reassert themselves I shall look for their first manifestations in this claustrophobic little world. As a "comer-in", even worse, an erratic, my presence has been accepted only gradually. If I graffiti regularly at these early hours he might be aware of the cases that still wait his urban deserts of strangers. But he will need to be early - it is not the same in the shifting anonymity of the 8.10.

In our encapsulated early morning community there is a small sub-group of "educationalists", three of us, all as it happens, involved in public sector education (but this is the 7.30 bus ...). At the stop, as wherever two or three gather these days from the world of education our talk seems to revert endlessly and inevitably to the iniquities of the system and the brutality of the cuts. We have all exchanged horror stories over these last few years: tales of mushrooming class sizes; stories of colleagues prematurely dead in middle age of overstrain; of others who have cracked and lost their nerve beneath the cumulative weight. Ours, as you will gather, is the view from the chalkface, the dismal prospect from the lower reaches of the educational hierarchy where the job is done.

We gathered as usual in the darkness of a Monday morning early in January, but I sensed immediately that all was not as before - rock-pool worlds sensitize the antennae. The first of my fellow travellers arrived, jauntily of step, jubilation scarce concealed; the second brought a leaden gloom which even a combination of snow and the first day of term did not warrant. She, it emerged, had received a long-awaited plum of early retirement; his Christmas present had been a reorganization which threatened the jobs of himself and half his colleagues. She could now confess that retirement had some shades of sanity; he had stopped off at the postbox to drop in half a dozen applications for new jobs. Our little community will soon be dispersed and I shall be left once more to discuss the Gas Board with the secretary from the Tribunal.

The 7.30 bus with its early morning intimacy and frankness is never taken by those who make the decisions in the public sector of higher education, nor do the columns of *The Times* regularly carry the voice of such victims of the constant cutting and reorganizing of these last years. My two friends have lived through it all: savage reductions in staff levels; neither of them doing in midlife career what they valuably trained for years ago. For one of them at least it has been no voluntary

diversification as she was shuffled through reorganized grammar schools, polytechnic departments and the museums' service.

Their experience touches on that of most of us who have spent the last decade or so in the public sector, at least those of us who have spent it teaching. From year to year we have been threatened or cajoled with one set of norms and staff student ratios after another; with rumours of redundancies and realities of colleagues unreplaced; with National Advisory Body proposals and promises of more - while the long death by a thousand cuts has whittled away our library expenditure to a bare minimum and raised our class sizes to the limits of efficiency. Individually and in retrospect every change and proposal may seem defensible, even sensible. But cumulatively their effect on morale has been devastating, creating a constant pressure and uncertainty, and like all cumulative effects, in danger of passing insufficiently remarked.

Institutions and departments cannot be subjected to the constant turmoil of reorganization and the source-veiled threats without creating an atmosphere of despondency and insecurity which is inimical to all the aims of higher education whether in teaching or research. To demoralize the practitioners is no way of achieving that innovation and responsiveness to changing demands which we are told is the current aim. It is a recipe for defensive reactions, for a retreat into apathy, for ill-thought-out schemes whose major aim will be the defence of jobs rather than the challenging needs of continuing education or of the non-traditional student.

At it most obvious it means hours wasted in committees briefed to find ways of survival, to paper over the chasms created by the cuts rather than to exploit the genuine goodwill and readiness to open up new areas. It is an insidious sullen presence souring the creativeness of higher education. Many of those who have lived through these changes will still be in post in the 21st century, though ominously most of them doubt what they will be teaching. The long-term damage which has been inflicted on their morale may well prove the most lasting legacy of the cuts.

It is in such circumstances that Sir Keith Joseph announces his intentions to monitor teaching standards; makes clear his commitment to management by coercion, or rather a blend of force and a public lack of faith in the professionalism of teachers. The Education Secretary, so I am told, has a razor sharp intelligence, he is an intellectual in politics, one of the best brains in the House. But it is a strange definition of intelligence which recognizes it in this cold application of logic to complex human situations, which sees morale and human reactions as unimportant aspects of the equation.

It is not the subtle understanding I spend my time trying to give humanities students. What higher education, all education now needs is, if not stability, at least a shot of confidence in the arm. Before he goes further in his plans to undermine the self-esteem of the teaching profession, I hope Sir Keith will take time to travel on the 7.30 bus, to get the view from bottom. But he will have to be quick because soon there will only be me and the secretaries of financial institutions at the bus stop.

Eric Robinson continues his series with an analysis of the geographical spread of polytechnics

Filling the gaps in the poly map

The idea of a national system of polytechnics, each with a national and an area function, each controlled jointly by national and local government, is a reasonable one. It loses credibility when some areas are served by no polytechnic and many polytechnics are controlled by local authorities that represent only a part of the area served.

The selection of colleges and local authorities for involvement in the designation of polytechnics in 1966 owed much to short-term expediency. It was based on rationalizing the existing provision of higher education with the objectives of containment and concentration. Thirty polytechnics were to be formed from some 70 existing colleges, or parts of them.

Since 1966, apart from further inclusion of colleges of education, again from expediency, there has been neither significant review nor rational development. Some obvious geographical anomalies remain unresolved and, more serious, there has been no review of the pattern of local authority participation.

The failure to proceed from initial expediency to a rational pattern has seriously handicapped the polytechnics. Some areas have no polytechnic, some have too many. Most local education authorities have no significant role in controlling a network that was conceived as a national system locally controlled. A scheme of rationalization has retained major irrationalities.

The national map of polytechnics has significant gaps because in 1966 certain areas had no colleges worthy of designation by virtue of existing development. The 1966 White Paper noted one of these and the gap was filled by the designation of Preston (now Lancashire Polytechnic) in 1973. But others have remained. Humberside protested about its exclusion in 1966. There were other gaps, notably in north Wales, East Anglia, Cumbria and Kent.

Nothing has been done to remedy these deficiencies by designating further polytechnics and little by deliberately encouraging the development of higher education in underprovided areas. The pattern of polytechnic distribution in central London had little rationality and only now is some action contemplated to remedy this.

Many local authorities control or share control of polytechnics, and others have no control, for no better

reasons than accidents of geography. Local government reorganization has deprived the present distribution of control of even the shred of respectability of conservatism.

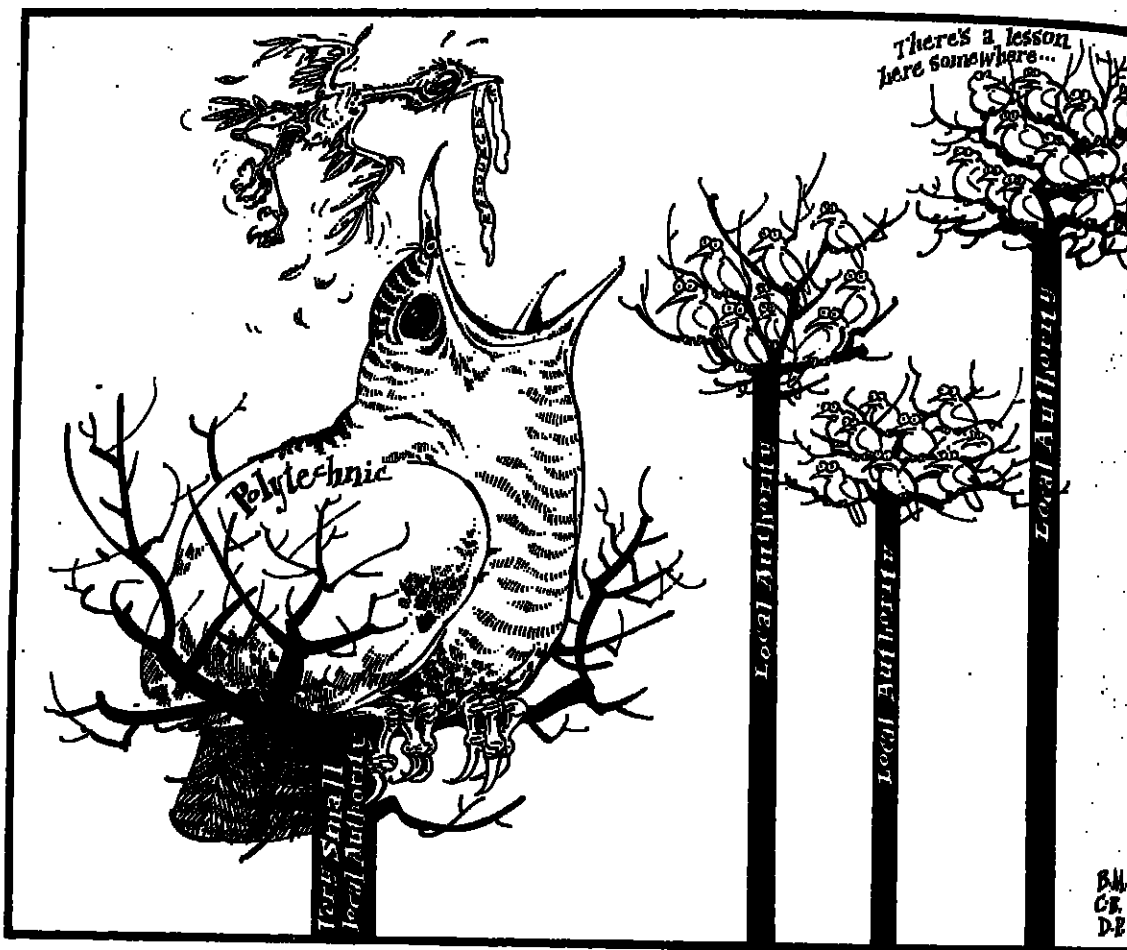
The old Essex County Council could claim most of the credit for developing the colleges that formed North East London Polytechnic, but the present Essex has no role merely because the buildings of these colleges lie beyond its boundaries. South-east England has more than its share of polytechnics but most of the home counties - Essex, Surrey, Bedfordshire, Berkshire, Buckinghamshire, Kent - have no part in the control of the polytechnics. The smallest local authority of all, Kingston, controls a polytechnic by a geographical accident of inheritance. The polytechnics of Liverpool and Manchester serve major conurbations but each is controlled by just one district council.

The polytechnics are generally located in urban centres but they were conceived as serving the whole country. As the table (below) shows, the control of polytechnics by the machinery of local democracy is exercised by less than 40 per cent of the electorate. Even in the metropolitan areas a large proportion of the electorate has no participation in the government of the polytechnics that serve them.

One of the consequences of this distribution of power is a political distortion. At present three quarters of the polytechnics are Labour controlled. Although this may be welcome to Labour supporters it does not help the polytechnics in financial negotiations with a Conservative government and this has been a significant factor in the National Advisory Body.

A heavy price is being paid for the failure of the Department of Education and Science to put some sense into local authority control of polytechnics. Some authorities have no more legitimacy in controlling their polytechnics than would the Hillingdon Council have in the control of London airport or the Paddington Borough Council in controlling the Great Western Railway.

The most intractable problem within the NAB is that most local authorities are opposed to the polytechnic policy because they have no share in a polytechnic. It would save much of its time in mere quarrelling and in the inappropriate pursuit of motives if it would devote some of its time to



questions of political rationality and legitimacy. Either local authority control of polytechnics should have some injection of rationality and legitimacy or it should be scrapped.

The polytechnic policy could be developed or it could be abandoned. It could be abandoned in two ways, both of which have influential support. The present trend of the local authority associations' policy is to retreat so that the polytechnics revert to being merely a part of the further education system.

There are two objections to this. It would involve a furious response from the polytechnics and would escalate difficulties with the controlling authorities. It would lead to further proliferation and discommodities of higher education provision. It would indeed lead to crisis.

The second way of abandoning the policy, which is the logic of current DES thinking, is to convert the polytechnics into universities or to incorporate them into existing universities. The objection to this is that it would imply a support for educational priorities almost diametrically opposed to those which are characteristic of the polytechnics and which meet the needs of the future. The current policy statement in the NAB derives from the conflict between the two ways of abandoning the polytechnic policy.

There is a case for developing a distinctive polytechnic policy under modified local control. A weakening of the student grant system, an increased priority for part-time education, for mature students and for continuing education, all point to an increased local role for higher education institutions and closer working with the institutions of further and adult education.

This is the basis for a case for a local element in the control of higher education. The unlikelihood of the universities responding substantially to these priorities, or coming within local jurisdiction to become more local in function, strengthens the case for developing the alternative system.

There is no case that every local education authority should run its own higher education institution or institutions. Most local authorities are too

small for this. But in a locally-controlled national system every local authority should have a role.

The obvious resolution of this dilemma is in the use of the machinery provided in the 1944 Education Act for exactly this type of situation - the joint committee of two or more authorities. In the control of two of the polytechnics it has been used successfully since 1970. The polytechnic system would gain greatly in credibility if each part of the country had its own polytechnic which it controlled through a joint committee for higher education formed by the authorities in that area. A joint committee of Surrey and several outer London boroughs would have the credibility in the control of Kingston Polytechnic that the borough of Kingston will never have.

The NAB is frustrated by the intractability of the problem of the proliferation of higher education centres in close proximity operating independently - the problem the polytechnics were created to solve. This problem would be greatly reduced by the introduction of joint committees which controlled several centres and were given incentives to rationalize.

Greater Manchester, through a joint committee, would, much more appropriately than the NAB, rationalize the higher education of Manchester, Bolton, Stockport and Salford. The problems of Durham and Sunderland; Chelmsford and Barking; Sheffield and Rotherham; Preston and Blackpool; Reading and Oxford are

better solved locally than nationally. As a consequence of the abolition of the metropolitan counties and the Greater London Council the Government will need for a number of purposes to create new joint boards and committees of local authorities. The creation of joint committees for higher education might usefully form part of this exercise.

Some gaps should be filled. Polytechnics cannot be very important if East Anglia can manage without one. A joint committee for East Anglia should be established to one (perhaps by persuading the University of East Anglia to accept designation?). New polytechnics at Hull, Derby and Bournemouth are already there for the designation.

These ideas may seem to verge on fantasy but perhaps this is because a little imagination has been brought to bear on these questions for 20 years. Crosland and Weaver were heavyweights but they did not write as taboos of stone.

All this will generate little enthusiasm among most teachers and students in polytechnics who, I believe, will react with cynicism to any attempt to rehabilitate local authority control. There will be talk of good things coming out of Nazareth and of foggy dead horses.

Next week: the relationship with local authorities

The author is director of Lancashire Polytechnic.

CONTROL OF POLYTECHNICS					
England and Wales excluding the Channel Islands and the Isle of Man					
	Number of polytechnics	Councils controlling polytechnics	Councils controlling no polytechnics		
County councils	12	12	10.7	36	20.0
Metropolitan district councils	10	10	4.8	28	8.8
Outer London boroughs	3	3	1.3	14	3.1
Inner London Education Authority	6	1	2.6		
Total	30	28	19.4	78	26.7

Figures extracted from *Local Government in Britain*, Tony Byrne, Penguin, 1983 (2nd ed) Education Yearbook 1984 Education Authorities Directory 1984

Diary of somebody to the well informed

On January 11, we offered book token prizes for correct identification of nine passages from new year diaries and one supplementary question. The 220 prizewinners are S. C. Kincaid, King's College, London SW4; Dr David Nokes, King's College Hall, London SE8; and J. H. Bavin, Prince of Wales Mansions, Harrogate.

The questions, obviously, didn't cause too much bother. Question 1, 'Sue Townsend's Adrian Mole was instantly recognizable to most: only 2 and 3 seemed to require guesses; the second passage was also the most liberal with quotes: "Henry's Black and White" was the only one that

Spring and Brooklyn should have suggested. Anne's Ma, but the bulk of entries thought Simone de Beauvoir, Virginia Woolf or even Gertrude Stein's Tom Paine was a fair enough guess but the passage came from William Cobbett's account of his year at North Hempstead.

Question 4, Mr Potter, creation of George and Weddon Grossmith; 5, Evelyn Waugh; 6, Dorothy Wordsworth. But 7 prompted a few guesses, including some literary teamwork not recorded in the critical literature - the answer, last unfortunately, was Edmund and Jules Goncourt's *Le roman expérimental*.

Arnold Bennett, whose *Anna of the Five Towns* is the subject of a successful current television adaptation, was not John McVicar, but Jimmy Boyle, from Cinnabon's edition of his prison diary, *The Pain of Confinement*.

Few failed to get Anthony Burgess whose 1983 has supplanted *The Other One* on the bookshelves for the time being. The less go-faced went for Spike Milligan and Eric Sykes, which did just as well. One distinguished educationist suggested Rhodes Boyson.

Congratulations to the three winners and thanks to all the entrants.

BOOKS

Buried beneath a pyramid of praise

by Claire Cross

Thomas More: a biography
by Richard Marius
Dent, £16.95
ISBN 0 460 04637 3

For English-speaking readers in the twentieth century Thomas More in a very special way has become a man for all seasons, with every generation, it seems, creating a More in its own image. Having rescued More from the Catholic ghetto where his reputation as a martyr for the papal supremacy had been cherished for four hundred years, R. W. Chambers in 1935 produced a portrait of More the Renaissance humanist dying to uphold liberal values against tyranny. A professor of English, Chambers looked upon More's life as a tragedy in five acts with a prologue and epilogue, and to all intents and purposes his interpretation has held the stage ever since. Despite the attempt in 1953 by E. E. Reynolds in his *Saint Thomas More* to right the balance by laying stress upon More's burning religious concerns.

Yet much has happened in the realm of More scholarship in the years since these books appeared, not least on the other side of the Atlantic where Yale University has sponsored the edition of More's complete works, the University of Toronto an English translation of the correspondence of Erasmus and an entire journal, *Moreana*, has been established to explore More and his world. The time is therefore ripe for a new synthesis and Richard Marius, who has been associated with the Yale edition almost since its inception and who in addition has already written a biography of Luther, well fitted for its undertaking.

Almost from the first page the author makes it clear that this is to be no work of blind adulation; he means "to find the More of history buried beneath the pyramid of praise heaped over his name in recent times". From the start he concentrates upon the enigma of More, "a complex, haunted, and not altogether admirable man". Following in the footsteps of G. R. Elton who in lectures and a newly published article in the festschrift for A. G. Dickens has emphasized the black side of a More who "knew demons within whom he could subdue and tame but never exorcise", Marius presents him as a man at war with his sensuality as the leitmotif of his study. For him More was oppressed throughout his life by man's fallen nature in general and his own in particular. The temptation to which he succumbed came at the very beginning of his career when, after his short period at Oxford, still in the early sixteenth century overwhelmingly a seminary for priests, and his time in lodgings within the confines of the London Charterhouse where, ostensibly learning the practice of the Common Law, he took time off to lecture in Grocy's church on Augustine's *City of God*, he sought rather to please his earthly than his heavenly father and married, making his fate doubly sure in 1511 by taking a second wife within a month of the death of his first. He could never now receive ordination, yet, Marius argues, he knew with a terrible certainty that a priest's life was more acceptable to God than that of a layman, and the life of the cloister most acceptable of all. For the rest of his days he remained essentially a monk manqué. Because of the weakness of the flesh he had yielded to his lower nature when a higher way had opened before him. With scant regard for his family's feelings he subsequently tried to make amends by moulding his household into an approximation of a monastery, but still true peace of mind eluded him until Henry VIII, an improbable saviour, gave him a cell in the Tower where, freed at last from mundane cares, he could atone for his sins and prepare his soul for eternity.

Marius does not think that More's *Utopia* in any material respect invalidates this verdict. In company with several recent political theorists he regards this highly ambivalent treatise, once hailed as a manifesto of a brave new world of socialism and religious tolerance, as profoundly pessimistic and entirely consistent with medieval



Thomas More by Holbein

Catholic values. With his emphasis on consensus as against individual judgment, his belief that life cannot be held to be an end in itself but only a means for cultivating the growth of the spirit, his condemnation of passion, elevation of devout simplicity, elimination of idleness and frivolity, More in effect immures his Utopians in a nationwide monastery, safe from contamination from the world. More the benign reformer shocked into conservatism by Luther's rebellion, Marius contends, is a myth.

Always, therefore, an orthodox late medieval Catholic who reacted with frenetic violence against any who dared to challenge the church's authority, More may well even in his youth have been a less than totally committed humanist. Probably never entirely

comfortable with the ridicule Erasmus directed at things sacred in his *Præface* of 1516 he turned decisively against any form of criticism which might incite popular antipathy towards the church as soon as Luther had made his protest. The friendship of More and Erasmus probably was neither as long-lasting nor as intimate as some scholars once thought. Only when he needed specialist help over the publication of his *Utopia* on the Continent did More begin to make use of Erasmus as Erasmus had earlier, without much success tried to use him to gain advancement in England. His craving for the elder scholar's continuing support in his various literary controversy led More to defend Erasmus's Greek New Testament perhaps without having examined its conten-

Shorn of its classical hyperbole, the correspondence between the two men reveals personalities with very different priorities and preoccupations. In his account of his public career, which More willingly embraced, perhaps even consciously sought, despite the apparent reservations set out in *Utopia*, Marius draws on the new monograph by J. A. Guy. Above everything else a lawyer with his most significant achievements in the Court of Chancery, More was never other than a royal councillor of the second rank. So long as Wolsey retained the king's confidence, More stood in the cardinal's shadow. When on Wolsey's disgrace the office of Lord Chancellor passed to him, he never gained Henry's favour because of his known

hostility to the divorce, and so never exercised anything approaching the same power as Wolsey had done. With Cromwell clearly in the ascendant and the crown exploiting the anti-clericalism of the Commons to suppress the independence of the church More's last months must have been bitter indeed. Kept in office lest he provide a focus for opposition, not even the time of his resignation was of More's choosing. Only with the submission of the clergy accomplished did Henry deign to let his discredited minister go.

His longing to protect the church when all he held most dear seemed under threat may have been the chief motive behind More's acceptance of the chancellorship. From the first moment of Luther's onslaught upon the church's traditions More had stepped into the ring with a succession of frantic attacks upon the reformer and his allies. First in Latin, then with the publication of Tyndale's translation of the Bible in English, More employed all the stratagems of his command to counteract heresy. Not blenching to answer Luther's obscenities with obscenities of his own he dashed off tract after tract, all ultimately in vain. A convinced upholder of persecution, he came near to justifying the wisdom of sacrificing the few for the salvation of the many. Yet he died grandly, almost alone in England maintaining the unity of Christendom and the liberty of the church against the state, "the king's good servant, but God's first".

This volume brings all the uncertainties of More to the fore, a layman who would have been a priest, an authoritarian who wished to seem gentle, an obsessively busy man who desired solitude, an exponent of the rights of the individual conscience who showed little respect for the consciences of others. Marius's strength lies in the fact that he tries to understand More through his writings and includes the totality of his works, the bitter polemics against heretics as well as the *History of Richard II*, *Utopia* and the *Dialogue of Comfort*, more congenial to modern taste. He provides a useful guide to the latest books on More which he treats with the same common sense he extends to the glosses on *Utopia*. Viewing with a proper scepticism the contemporary or near contemporary accounts of More, Marius does not attain the sheer readability and charm so evident in the earlier biographies called largely from Roper and Harpsfield, but this is not his main intention since he aims to enlighten, not edify. Not without justification acclaimed on the dust-jacket as a "blockbuster" - it extends to thirty-one chapters and over five hundred pages - because of its length the book may prove something of a deterrent to all but the most devoted adherents of More. For this reason, in most respects unfortunately, in Britain at least it may not altogether displace Chambers's *Thomas More*.

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Monastic learning

The World of Orderic Vitalis
by Marjorie Chibnall
Clarendon Press: Oxford University Press, £22.50
ISBN 0 19 821937 7

In 1085 Orderic left his family in Shropshire to be received as a child oblate in the Norman monastery of St Evroult. "If you go now," his father told him, "you will be numbered with the Holy Innocents at your death". Like Bede, who entered Jarrow at the age of seven, Orderic was without experience of the world; and he remained so. In the 57 years or more that he was a monk of St Evroult he held no major office in the house. Instead he read and transcribed manuscripts, he observed the people who came and

went; then in middle life (c.1141-41) he wrote the 13 books of his *Ecclesiastical History*.

His French name is a reminder of the type of monasticism that he experienced in St Evroult. Arriving on the eve of the feast of St Maurice, one of the great soldier-saints, Orderic was named "Vitalis", after one of Maurice's lieutenants in the martyred Theban Legion. The world of a St Evroult monk was structured according to the liturgy, but it was furnished in equal measure with monasteries and castles. These were all interrelated: strategically, economically and in their personnel; there is no simple division of sacred and profane. The young Vitalis's contemporaries were growing up to be knights as often as monks. Either way they were aristocratic. Correspondingly the staple of Orderic's narrative is courts, feuds, marriages and disasters - only rarely and by chance the rural peasantry or the new and prosperous towns. His world was one of families, whether monastic or secular; and over his years at St Evroult he recorded their immediate past and

their multifarious activities in his own time.

Marjorie Chibnall has already put us inculcably in her debt by editing and translating the text of Orderic's *History*. In *The World of Orderic Vitalis* she reviews the themes that preoccupied Orderic and the great historical issues which are illuminated by his work. His *History* is a prime source for the Norman aristocracy who conquered and held England, for the development of monastic life in England and Normandy, for our assessment of monastic learning and for ecclesiastical and papal politics in the first half of the twelfth century. On such questions Dr Chibnall's book is a masterpiece of calm and reliable judgement; a mild parenthetical or a brief footnote will clarify obscurity and expunge error. *The World of Orderic Vitalis* can be read with pleasure and understanding by the interested amateur and with profit by the sixth-former and the undergraduate.

The book lacks passion. Historical issues are presented in the light of mature reflection rather than urgent

debate, and the intermittent violence - even savagery - of Orderic's original narrative is muted. The introduction to the concluding volume of the edition (1980), which treats of Orderic himself and the society in which he lived, has a sharper edge - presumably because it is nearer to the text. Dr Chibnall's rendering of Orderic's own text into English is a more exciting work of scholarship than her tranquil reflection here on Orderic's "world". The translation is exact and vivid. Even the (at best) bronze of Orderic's elegy on Prince William, drowned in the *White Ship*, shines "brilliantly".

What could a great retnue, or what wealth, or earthly glory, Or your own beauty, William, do there to help you? Royal splendour decays; and the ocean obliterated Equally what you have been and what you were going to be... (xli.26)

Margaret Gibson

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SCOTLAND'S GREAT DEBATE

Scottish higher education is at the cross roads, with the Scottish Tertiary Education Advisory Council set to review how best it can meet the demands placed on it, as it heads into the twenty-first century.

A four-page report, first published in *The Times Higher Education Supplement* on December 14, 1984, sets the scene for Scotland's Great Debate, looking at the present system, the proposals for reform made to STEAC, previous attempts to plan higher education, and the way ahead.

Reprints of this feature are available, price 30p from Lesley Griffiths, The Times Supplements, Priory House, St John's Lane, London EC1M 4BX. Please make cheques/postal orders payable to The Times Higher Education Supplement.

BOOKS

Natural laboratory

Madagascar edited by Alison Jolly, Philippe Oberlé and Roland Albignac Pergamon, £14.95 ISBN 0 08 028002 1

Madagascar is really a small continent rather than a large island. This isolated land-mass, extending some 1,600 kilometres from north to south and almost 600 kilometres across, is the fourth largest island in the world, exceeded in area only by Greenland, New Guinea and Borneo. In contrast to these larger islands, however, Madagascar shows very little affinity in biological terms with the closest continental land-mass (in this case, Africa). Although the Mozambique Channel is less than 350 kilometres wide at its narrowest point, approximately nine-tenths of the plant and animal species, including several entire biological groups, are unique to Madagascar.

This high degree of endemism is found because Madagascar has been geographically separate from Africa for 100 million years or more. The modern plants and animals derive from original inhabitants present at the time of separation and from a limited number of chance immigrants that arrived thereafter. In addition, there is an unusual diversity of climatic conditions, ranging from the hot, humid conditions necessary to support dense tropical rain-forest in the north-east to the cooler, dry climate associated with semi-arid bush in the south-west. This climatic spectrum results from a combination of a north-south gradient in temperatures with an east-west gradient in rainfall.

Given such a diversity of climatic conditions, Madagascar's peculiar plant and animal inhabitants have diversified to produce a staggering array of species. Madagascar is therefore a key environment both in general biological terms and in relation to conservation. Indeed, the island has often been termed a "natural laboratory of evolution", a kind of Noah's ark of early plant and animal forms left to diversify in the absence of substantial outside interference over millions of years. However, as the resulting biological treasure-trove is now severely threatened, particularly by deforestation, effective conservation measures are urgently needed. To this end, a readily understandable guide to the plants and animals of Madagascar is much to be desired. And as most of the relevant biological literature is in French, this volume in Pergamon's *Key Environments* series will be especially useful.

Six chapters translated, competently, from original French contributions to Philippe Oberlé's 1981 book *Madagascar: un sanctuaire de la nature* and new contributions from Malagasy, European and American authors give the book a pleasing international flavour. Coverage is fairly comprehensive, although (for the usual reasons) the mammals are given far more space than other biological groups (notably the invertebrates). Renaud Paulian provides a useful general introduction to the geology, geography and climatology of the island, together with comments on the major fossil groups. This is followed by two chapters on the vegetation, one on invertebrates and eight on vertebrates. The book is concluded by a perceptive contribution from Alison and Richard Jolly on the economic background to conservation in Madagascar ("A tragedy without villains") and a listing by Joseph Andriamampianina of the reserves, national parks and forestry stations.

Largely as a reflection of the underlying disparities in research effort devoted to different groups or organisms in Madagascar, the chapters are very uneven in content. The survey of Malagasy birds by the late Constantine Benoit is a well-illustrated, model review; and the two botanical accounts by Jean-Louis Guillaumet and Rachel Rabesandratana provide a very sound background for the chapters on various animal groups. The four chapters dealing with mammals are also fairly comprehensive and well written, although different approaches are taken and only the chapter on lemurs adequately emphasizes conservation aspects.

Some chapters are disappointing. The late Paul Griveaud, faced with the almost impossible task of reviewing invertebrates in a single chapter, fell back on the solution of listing some of the more obvious forms (predominantly insects), with only a brief mention of conservation at the end. And although Rose Blommers-Schlösser and Leo Blommers merit some praise for at least attempting to introduce Madagascar's little-known amphibians, they make little concession to the non-specialist, their chapter consisting almost entirely of an account of frogs studied in a single rain-forest locality. It is also a pity that the chapter on Madagascar's reserves is confined to a listing of sites and of a few obvious species present; no information is provided on the current condition of the reserves, widely acknowledged to give cause for serious concern. Taken together, however, the chapters do provide a helpful general introduction to the natural history of Madagascar.

Unfortunately, many of the photographs are too dark or lacking in contrast; the text itself varies from faint print to heavy smudge; and there are many typographical errors.

R. D. Martin

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Physicist's forbears

From Falling Bodies to Radio Waves: classical physicists and their discoveries by Emilio Segré Pergamon, £24.95 and £13.95 ISBN 0 7167 1481 7 and 1482 5

Professor Emilio Segré is not only one of the world's most distinguished physicists, but also one of its more eloquent. A few years ago, in *From X-rays to Quarks*, he offered his reflections on the physics of the twentieth century in a survey of the physicists, most of whom he had known, and their discoveries. The book was a success, and he has now repeated the presentation for the great physicists of an earlier age (from Galileo Galilei to H. A. Lorentz).

From a historian's viewpoint, "discoveries" is far too crude a word to describe the achievements of such men, and in other respects too this is no book for historians. Considering the amount that has been researched and written on his subject-matter, the author must rank as relatively ill-informed. His historiography is crude, ill-structured, and well-labeled. Published facts rub shoulders with specu-

Founding fathers: Galileo and Huygens.

lative reconstructions and personal interpretations. Were Segré to present himself as an historian he would have to be criticized as irresponsible. However, since he explicitly renounces any such claim, his work must be measured by other criteria, and this is no easy matter.

What we are given is a series of verbal pictures portraying how Segré the physicist views his predecessors, none of whom he has known personally, but many of whom he feels he "knew". In another way, through their writings, and through the common experience of scientific endeavour, in would have sensed had he been able to meet personally a few of those whom he writes. The overall effect is that of sitting at Professor Segré's feet, adding up his impressions, and of course, the insights that go with these.

Innate soul?

Galen: On Respiration and the Arteries: an edition with English translation and commentary of *De usu respiratorum, An in arteria natura sanguis continetur, De usu pulmonum, et de causa respiratorum* edited by D. J. Furley and J. S. Wilkie Princeton University Press, £27.60 ISBN 0 691 08286 3

Aristotle, seeking to demonstrate that the essence of a thing was not mere morphology, pointed to the difference between a living and a dead body: the one breathed, moved, and was warm, the other not. Breath, motion and heat, the physical manifestations of life, had long been connected, by one or more principles of life, "psyche", "thumos" or "pneuma". These were variously airy, mobile, warm, and even immortal.

Whether such a soul was drawn into the body from the greater store of vitality in the air of the world, or was innate to the body - and if respired, whether transmitted from the lungs to the heart (so mobile and warm) or to the brain - were questions that were not conditioned by any detailed knowledge of anatomy or physiology. When Aristotle dissected animals, he gain a knowledge of the causes of the parts; his answer to these questions was that the heart was the controlling centre of the body, the seat of a non-respired,

innate soul. This was radically challenged in the next generation by Alexandrian medical men who not only dissected animals but also (a strong tradition has it) vivisectioned the human body. In searching for function, they seem to have discovered, by serial section of the spinal cord, the controlling powers of the brain and nerves.

This is the background to these four treatises by the Greek-Roman physician Galen (129 to about 200 AD). Their context is the arena of intellectual combat that Galen so wholeheartedly entered. If the soul is respired, then there must be anatomical pathways from the lungs to the rest of the "to-be-vivified" body; was this pathway through the heart and blood vessels, or brain and nerves? What contribution did the brain or heart make to the governance of the body? Galen's *Whether Blood is Naturally Contained in the Arteries* is a polemic against those who believed that the external pneuma was carried from the lungs to the arteries. His *On the Use of Breathing* attempts to settle the disputes between those who thought that the soul was respired, those who believed that air was nourishment, and those who held that it simply cooled the innate heat of an innate soul. *On the Causes of Breathing* is a technical tract on the neuromuscular machinery of the thorax and diaphragm.

In this sense these treatises belong together, and it is extremely useful to have a Greek text and parallel translation presented here, particularly as many obscure points in the western manuscript tradition have been illuminated by comparison with hitherto unused Arabic versions. Very useful

too are the history of the texts, the summaries preceding the translation, and the notes.

However, the treatises do not "belong together" in the editors' sense that they are significant in the development of the thought of William Harvey, who discovered blood circulation in 1628. To understand Harvey we need to know what he made of the Latin text available to him, not how we can improve the Greek text by the use of Arabic. It does not matter that Harvey can now be seen to have misunderstood an experiment of Galen's (cutting an artery between two ligatures). What is important is what Harvey did with his misunderstanding. (Lack of precise cross-references between the introductory essays and the text - and wrongly numbered footnote - serve to confound the confusion of this point.) David Furley's essay on theories of respiration before Galen is useful. J. S. Wilkie's essays, on their later history, on Galen's experimental method and teleological physiology, are less so. No doubt because he first undertook these translations for teaching purposes, he has one eye constantly on Harvey and his experimental method. Inevitably there is a tendency to describe how far a collection of texts in which Galen did battle with his predecessors measured up to Harvey's work, and to "the experimental method", an understanding of which, Wilkie tells us, came only with Stoic logic.

R. K. French

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Feathered weavers

Nest Building and Bird Behaviour by N. E. Collas and E. C. Collas Princeton University Press, £44.80 and £12.70 ISBN 0 691 08358 4 and 08359 2

The construction of nests is one particularly fascinating aspect of the behaviour of birds, and Nicholas and Elsie Collas have studied nest building in more detail than any other scientists. Despite its title, however, the scope of their book does not spread more widely, but it does examine nest building from many different angles. For example, they review the occurrence of different forms of nests and consider the way in which these are adapted to the birds' environments, the skills involved, how these develop, and how nest building is influenced by internal factors such as hormones. Several chapters concentrate on the weaver birds, a long-term research interest. Although much of this information is available elsewhere, it is useful to have it assembled in one

place.

The magnificent structures produced, and the deft way in which nest builders achieve their ends by choosing suitable materials and movements, is very striking - so striking that Aristotle considered the nest building of birds like the weavers a fine example of intelligent behaviour. When analysed in detail, however, the process of construction (as with human basketry) consists of a few simple rules and actions, the completion of each stage stimulating the onset of the next. The bird need have no foresight, aim, or great intelligence; provided it follows the rules, a perfect nest will result. Natural selection favours the most parsimonious means of achieving a given end: the elegance and simplicity of its solutions to tasks of great apparent complexity is one of the wonders of biology.

Another of selection's feats is to match the nest to the task that it performs. Although birds are warm blooded, development does not take place inside the mother. The developing young must therefore be protected from the elements outside world, and its temperature must be maintained at an optimal level for development to proceed. Incubation carried out by one or both parents, in protective and insulating

ness, is the commonest solution to this problem. Nests may simply be a platform on which the eggs can be laid and warmed well clear of danger, or elaborate construction using many different materials such as grass and twigs, silk and feathers to minimize both heat loss and the attentions of predators.

Perhaps the most remarkable case is that of the Mallard-fowl, in which a male builds a huge compost heap which the female lays. On hot days scrapes earth on to his mound and its temperature is kept down. If, however, the decomposition of the mound generates more heat than is required, he removes material to let it cool off. In this way the eggs are maintained within a narrow temperature range and the pair can hatch more young than they ever could were they to incubate themselves.

Although this somewhat specialized book contains many such interesting tidbits, it will not find its way on to many student reading lists. But it will be a useful reference in the libraries of universities where ornithology or animal behaviour are taught in some detail.

P. J. B. Slater

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teenth-century Dutch physicist and astronomer Christian Huygens. And this tells us a lot about Segré's own perspective. He is not interested in philosophers of science such as Bacon or Kant, neither of whom is even mentioned in the book. In his view "professional scientists" have done far more to develop the philosophy of science than have "professional philosophers". Descartes receives, some mention, but is apparently not enough of a professional scientist to get a section to himself. And Kepler is dismissed, more or less, as a "mythic" figure. Here at least the author could have benefited by some reading in the history of science. Few people would cite Huygens as a founding father, if only because the pace of the scientific revolution left him standing at the start, but he was an undoubtedly brilliant natural philosopher, and one with whom Segré himself clearly relates strongly, and with much sympathy.

From Galileo and Huygens the book progresses to Isaac Newton, whom Segré finds "unfathomable" (but who does not), and then splits up to follow a variety of courses determined, very loosely, by subject-matter, optics, electricity and magnetism, heat and matter theory. These courses are not, as Segré claims, "unfathomable", but they are, in the sense that they are not the work of a single mind. The men rather than the works dictate the internal structure of the book, and the science, natural and philosophical, is an experiment here and a theorem there.

But the principal characters are all introduced with varying degrees of success. In some cases, such as that of Michael Faraday, the impression created on Segré by the man and his work is clearly strong, and a vivid portrait results. In others, such as that of James Clerk Maxwell, there is evident admiration and even affection, but also evident difficulty of comprehension, and no clear picture emerges. A few, such as H. C. Oersted, seem completely beyond him.

Such problems are, however, rare, and on the whole the sketches are well done for what they are. Whether they will make attractive reading is difficult to say for one who knows the history to tell. But for physicists and students who know little about the history of their subject, but would like some faces (there are plenty of pictures) and biographical details to put to the names of equations and effects, the book should serve very well. And if it does not evoke much of a sense of history, it does do something that is perhaps even more important, which is to bring out strongly the sense of kinship and awe of affection that Segré himself feels for his forbears. This is the author's principal aim, and it is his principal achievement: it is so small one.

John Hendry

John Hendry's history of James Clerk Maxwell's electromagnetic theory will be published by Adam Hilger.

Business & Technician Education

Policies and priorities

Janet Elliot on BTEC's achievements

According to whether you count the birth of the Business and Technician Education Council (BTEC) as October 1, 1983, the official date of the merger, or January 1, 1983, the date of formation of the interim council, BTEC was either 13 or 21 months old at the end of January. In that time it has had to develop a new identity while still building on operational practices inherited from BEC and TEC. It has had to make progress against a background of a wide range of government initiatives, many of which have been announced and required to be operational in very short timescales. In addition, we have had to cope with the problems of merging two groups of staff with different customs and practices, and some mutual suspicion, into an effective and efficient operational team. Given this background, what has BTEC achieved?

Any list must be headed by the overall review of the policies inherited by the council - a review that began with informal consultations in the autumn of 1983 followed by the publication of a formal consultative document in December. This in turn was accompanied by a series of planned and requested meetings with commercial interests, industrial organizations, educational and professional bodies, and with individuals and groups of staff from many colleges. BTEC's framework for rationalization and

● Availability of programmes of study: to be achieved by maintaining traditional study routes - full-time, part-time sandwich and block-release - as well as by encouraging open and other distance learning methods (thus increasing the opportunity for students to obtain a BTEC qualification by the study of individual units which would accumulate credit).

● Core studies: a commitment to extend the use of core studies common to a range of employment areas particularly in the context of BTEC national courses (particularly relevant to technicians in engineering and already well developed in courses for business and finance).

● Interdisciplinary themes: emphasizing the importance of the education and training leading to a BTEC qualification being planned as an integrated, coherent programme of learning and development; this coherence should also be apparent to the student.

● Up-dating the curricula and learning strategies: emphasizing technological content and the development of the personal skills of the individual students, as well as learning processes and teaching methods.

● National credibility of BTEC qualifications: a commitment to building on existing acceptance of BTEC awards by education, professional bodies and employers to win yet greater and broader recognition. In

getting appropriate recognition and status for students who follow the BTEC routes. A major marketing exercise was the nine "design by experience" meetings for employers in the autumn of 1984, to promote both general awareness and to increase the flow of work placement offered to BTEC design students. Ministers attended to give government support to this enterprise.

In 1983-84, the council was delighted to have to cope with a record number of registrations of new students - in excess of 180,000. Figures for 1984-85 are not yet available but first impressions are that they will again show an increase. The reasons for this growth include the continued and increasing use of BTEC qualifications for the college-based elements in Youth Training Scheme programmes, the transfer to BTEC of the remaining higher national diplomas in engineering (which until this year had remained the responsibility of the Joint Committee for National Awards in Engineering), the absorption under the umbrella of BTEC of national awards in agriculture, and the acceptance in 1983-84, for the first time, of higher national awards in mining. Yet a further and significant feature has been the major growth and development of BTEC pre-vocational education as part of the Technical, Vocational and Education Initiative (TVEI) in the age range 14-16 and in the launch of the Certificate for Pre-Vocational Education (CPVE).

The pre-vocational developments, particularly the CPVE, are especially noteworthy as the second major activity of the council in its first year of existence. Early in 1983, BTEC together with the City and Guilds of London Institute (CGLI), accepted from the Secretary of State for Education and Science, a commitment to develop a CPVE and to have the new programmes operational by the autumn of 1985 in schools and colleges throughout England, Wales and Northern Ireland. Pilot schemes, monitored and evaluated by the Further Education Unit, are now being run in 15 Local Education Authorities. As part of the CPVE development a further major consultative exercise was undertaken in 1984. The resulting curriculum framework was published last month. Applications from schools and colleges to offer CPVEs from September 1985 will be received and processed during the spring and summer. Some concern has been expressed about the wide ability bands for which the one-year post-16 award will provide and the complexities of curriculum design which this imposes on individual schools and colleges. Nevertheless, the published proposals have excited substantial interest and there is evidence that the CPVE will fulfil real educational needs of a wide range of young people at 16, for many of whom the mixed arrangements in schools have proved far from satisfactory.

A major side-effect of the CPVE development has been the opportunity it has provided for establishing a more effective working relationship between BTEC and CGLI. In addition to their co-responsibility for the Joint Board and the CPVE the two councils are also committed, via a "Statement of Intent" published early in 1984, to work together in the whole area of pre-vocational education. This will be a major contribution to the continuing rationalization of pre-vocational courses for the 14-16 age group both within and without TVEI. These developments will also provide a unique opportunity for BTEC and CGLI to work together with school sector bodies, particularly the Secondary Examinations Council.

Progression in rationalization remains a matter of substantial interest and concern. For students following the standard BTEC vocational routes, there is the question both of recognition by professional bodies and employers and opportunities to switch course or transfer into traditional forms of higher education. For example, the review of BTEC (former BEC) national awards for the business area in 1983 found that some 50 per cent of full-time students taking the

● External moderation and standards: a commitment to a major review of all aspects of the quality control of its courses - already in hand.

● Liaison and participation: an increased programme of liaison has begun with employers, trade unions, colleges and schools involved in BTEC work, and educational and professional bodies.

● Cost and resource effectiveness: a review of its internal administrative procedures in the interests of improved cost and resource effectiveness, a major review of requirements for computer facilities has already been completed and a review of present validation procedures in relation to objectives is about to begin.

Against these commitments, some of them already being implemented and some for the future, what else has the council achieved in this first brief spring of its existence? First, it has been able to project a more effective public image than BEC and TEC were able to achieve separately. This has been particularly important in a climate where marketing, both of the image of BTEC from the "centre" and the idea of BTEC qualifications by individual colleges and polytechnics, has been identified as crucial to success.

Basil Blackwell

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Edited by TOM FORESTER

One of the areas of greatest technological development has been in the provision of information - now a major growth industry. In this book the most prominent people in the field look at the future development of information technology. 704 pages, hardback £27.50 (pb £13.50) paperback £9.95 (pb £5.95)

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The Economics of Modern Business

W. DUNCAN REEKIE and D.E. ALLEN

In this highly original textbook, the authors examine major management issues in a sensible and entertaining way. A special feature of the book is its successful integration of introductory financial analysis with macroeconomic theory, and it also discusses the individual firm within a broad context. 368 pages, hardback £22.50 (pb £13.15) paperback £8.95 (pb £5.95)

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A comprehensive introduction to the organization and outline of British industry, this book is firmly based on recent empirical studies and the latest data. It discusses many of the topical issues in industrial organization - privatization, small firms - as well as such subjects as cost-effective markets, transaction costs, the nature of the firm, the entrepreneur. (April) 224 pages, hardback £17.50 (pb £10.95) paperback £4.95 (pb £3.95)

Industrial Strategy

An Introduction JOHN GRIEVE SMITH

The importance of strategy in determining the success or failure of a business has received increasing recognition in recent years. This book provides a concise and clear introduction, cutting through the abstractions and jargon which frequently surround strategic theory. (May) 192 pages, hardback £15.00 (pb £7.95) paperback £6.95 (pb £4.95)

Value for Money

A Guide to Principles and Good Practice in the Public Sector H.A. BUTT and D.R. PALMER

This timely book is a compact yet comprehensive guide to all aspects of VFM in the public sector, explaining in a cost-effective way what it is, how a VFM system can be set up, what the key elements of good VFM practice are, and the specific techniques and methods to be used in achieving VFM. (June) 200 pages, hardback £19.50 (pb £14.95) paperback £7.95 (pb £5.95)

Banking Law

E.R. SHAW and J.B. HOWCROFT

Banking Law is a comprehensive, up-to-date textbook describing the law and legal instruments relating to banking, and illuminating the underlying principles. It gives the student a clear idea of how issues and problems in banking law can be analysed, which is an essential complement to factual knowledge. (June) 220 pages, hardback £17.50 (pb £13.50) paperback £8.95 (pb £5.95)

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Business & Technician Education

BOOK REVIEWS

Out of context

An Introduction to Business Accounts by John Harrison and Ron Dawber Pitman, £3.95 ISBN 0 273 01995 3

Numeracy and Accounting by Joseph Chilver Macmillan, £5.95 ISBN 0 333 35927 5

Accounting for Business Organizations: a practical approach by Graham Taylor and Chris Hawkins Macmillan, £8.95 ISBN 0 333 37406 1

Understand Accounting! by Claude Hitching and Derek Stone Pitman, £5.95 ISBN 0 273 01883 3

Statistics for Business by Paul Whitehead and Geoffrey Whitehead Pitman, £3.95 ISBN 0 273 01975 9

Introduction to Microeconomics by Dave Bilgith and Tony Shaflo Pitman, £4.95 ISBN 0 273 02043 9

There must surely come a time when there will be an agreed philosophical and pedagogical approach to the introduction of the various business disciplines at any given level of business education. Until that day, however, authors are faced with the daunting task of correctly identifying the approach appropriate to the segment of the market they are seeking to address. This task is further complicated by the need to decide whether

what is "appropriate" is determined by current fashion and imposed curriculum or by some critical re-appraisal of the needs of that market segment.

Moreover, since most publishers understandably seek to embrace a range of markets with any one text, authors are under pressure to create the "multi-purpose" text, seeking a means of reconciling the often conflicting requirements. Purely pragmatically, however, the market for the introductory text is so substantial - the BTEC, degree and professional courses account at their various levels for perhaps 80,000 to 100,000 new students each year - that almost any competently written text, however confused its philosophical basis, can establish an adequate short-run market penetration - although only the more innovative few will give birth to second and subsequent editions.

An Introduction to Business Accounts is directed at the lower end of the market - Royal Society of Arts (RSA) stage 1, BTEC general level, together with courses in the training opportunities scheme (TOPS). The authors correctly identify the focus of attention at this level as "accounts-related office procedures", and make copious use of source documents which can only be helpful to a student at this stage. The basic procedural skills of financial accounting are adequately and imaginatively developed with good examples backed by additional questions. The book contains a "case-study" approach throughout, basing examples and explanations on the activities of a firm of "camping equipment manufacturers".

Although this approach is commendable, it may be criticized for failing to point better students towards the conceptual framework within which accounting is set. Moreover, although the case-study is based on a manufacturing business, the text ignores completely the manufacturing dimensions after brief reference in the initial organization chart - indeed, on the very next page the illustration of profit calculation is that of a trading rather than a manufacturing concern. Simplifications which lead to inaccuracies - the definition of depreciation, or the impression that "profit" is a unique and correct answer - are best avoided even at this level. Finally, the problem of the multi-purpose text is brought into sharp relief by the inclusion of a chapter on non-trading concerns which has everything to do with the RSA syllabus, and nothing to do with the central focus of this book.

Numeracy and Accounting is aimed specifically at meeting the requirements of the BTEC national level common core module of the same name, and there can be little doubt that the content of this text matches the module's learning objectives. It goes successfully than most this text integrating the numeracy with the accounting skills, and as such will be very useful.

BTEC has repeatedly observed, however, that the key to its "student-centred" philosophy lies in the development of a learning and assessment strategy which places the student in situations and roles related to his actual or immediately intended occupation, and which uses those situations to develop both cognitive and interpersonal skills. The author of this text acknowledges this thrust; as he observes "while primarily concerned with the financial aspects of business... from time to time assign-

continued from previous page

BTEC national diplomas in business and finance and in public administration went on to take either university or polytechnic degree programmes or BTEC's own higher national awards. There is also a need to ensure effective opportunities for progression without undue repetition for young people doing TVET-sponsored programmes between 14 and 16. This can be achieved by linking TVET programmes to the CPVE and to traditional vocational courses. Successful CPVE studies can also provide entry to and exemption from parts of BTEC, CGLI and other vocational programmes.

Last year attention was focused on the role of central bodies in the validation of courses by the establishment of the Lindop Inquiry. Although primarily concerned with degree, BTEC, along with other bodies, was



From Harry Ogden's *Workshop Numeracy*, reviewed on page 25.

ments will be introduced which recognize other vital themes such as people and communication."

In this, the text is only partially successful for two main reasons. First, it is unfortunate that the material is based on "real life" situations, the author finds it necessary to qualify that claim in his assertion that "the characters and companies referred to are wholly fictitious". (The "international flavour" promised by the preface is broadly confined to substituting the dollar for the pound, and Kuala Lumpur for London.) Second, if the student is to penetrate beyond the technical accounting skills, then each assignment must specify for the student the range of skills being assessed, the relative importance of each, and give due weight to the development and assessment of interpersonal skills.

Accounting for Business Organizations, claimed to be "a basic text for students of BTEC national and higher national, GCE A level, business degrees and diplomas and professional courses", is an excellent illustration of the problems of reconciling conflicting philosophies and serving one well. First, professional foundation courses require, inter alia, a fairly detailed treatment of basic financial accounting and costing procedures: four brief chapters are provided. Second, the degree student must be exposed to the conceptual problems associated with income measurement and valuation: little is offered beyond a brief uncritical discussion of SSAP2. And third, a BTEC high level course demands the development of learning and assessment strategies based on realistic tasks and which develop both cognitive and interpersonal skills: although valiant attempts are made to treat more than mere "number crunching" skills (particularly in some useful case-studies at the end of the book), the overall emphasis remains one of cognitive abstraction.

Although I can sympathize with the

author's philosophical dilemma, there are other features of this book - inaccuracies and omissions in the introduction to company accounts, no treatment of capital investment decisions, and a sparse one-page index - which would suggest that this text is unlikely seriously to challenge other more established books.

Understand Accounting!, unlike the other three, is "not intended to be a syllabus text... does not include question material" and is written for the non-accountant because "finance is an essential part of any manager's mental equipment". The book has been developed out of a series of in-house training courses for a major public company, and which is unconstrained by the need to meet externally imposed curriculum and philosophies. It is a well written, lively text which focuses selectively on some of the financial issues important to managers employed outside of the finance function. Particularly welcome in this respect is the chapter on productivity and added value - a vital ingredient in business success, yet virtually ignored by most conventional accounting texts.

It is rather surprising, however, that more emphasis is not given to some crucial short-term financial decisions - for example, pricing policy and practice, and make/buy decisions. Indeed, the authors tend to emphasize financial accounting and management at the expense of financial management by distilling out in their various ways what is perceived to be common ground - the concepts, methodologies and techniques. In adopting this solution, however, the authors are forced to a greater or lesser extent to reject the essential business context which they are purporting to serve.

degree courses". To achieve this degree of universality the authors focus students' attention on the one feature common to all - the acquisition of the basic technical statistical skills. As a text in elementary statistical method, the book explains and illustrates the fundamental techniques in a concise but simple manner, and generally provides an adequate coverage of what are basically similar curricula.

However, as might be expected, the attempt to serve all markets incurs penalties. The amount of mathematical statistics and the critical understanding of the statistical process is minimal; there is little attempt to draw on "live" business sources - company reports and accounts, economic intelligence reports, newspapers - in either the text or the question material; and it must be questioned whether the language and style appropriate for a degree student is really suitable for the CSE student. This text, in stripping statistics of its economic and pedagogical context, has no more or less claim on the market than the many other similar books available to students.

Like Statistics in Business, the Introduction to Microeconomics is an omnibus text, meeting the demands of economics curricula from A level, BTEC, professional and first-year degree courses by distilling out the common denominators - the concepts and methodologies of microeconomics. The authors explain the basic theory and techniques clearly, and it is pleasing to find a text dealing thoroughly with production theory before introducing the rather more esoteric concepts of consumer theory. The authors have also made available related microeconomic software - it would be useful to know which hardware is compatible - that provide a range of self-test questions, simulations and statistical packages.

I have some criticisms. First, the firm does not exist in a political and economic vacuum, and a brief introduction to the macro-context within which the firm operates would have been valuable. Second, the text presents a predominantly technocratic view of business, neglecting some of the valuable behavioural insights. Finally, it is pedagogically debatable whether the methodology should proceed the problem, or the problem the methodology. The authors deliberately omit institutional or applied material because "anything written now is likely to become quickly out of date". I suspect that to have all this information in one section will give students the impression that it is something to learn about as an afterthought. Similarly, the sections on possible problems and how to avoid and correct them should really be read by the student before attempting to prepare a dish. Comments on *nouvelle cuisine* might better have been left with just the comments in the introduction, plus a reference. As the book does not cover the majority of the information needed for the food units in BTEC courses, it will be interesting to see if the series is extended to include a text which covers kitchen planning, organization, supervision, and food and beverage management.

Housekeeping is one of the areas in which many colleges have poor resources and the need for good textbooks is all the more important. Compared with cookery, there are few books available. *Housekeeping Supervision* is a well-presented text, good use being made of tables, diagrams and photographs. Each chapter starts with a list of learning objectives with which students on BTEC courses will readily identify; and ends with self-assessment questions which lecturers rather than students will find useful. Where appropriate - for example, the chapter on cleaning agents - the author has achieved a sensible overlap with applied science. This book should cover the content of units at levels I and II of BTEC national diploma schemes and bridging components of higher national diploma schemes. It should also prove a useful source of information for assignment and project work of higher level units.

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John Bull

R. J. Bull is deputy director (academic) at Plymouth Polytechnic, chairman of the CNA business studies board, and a past vice-chairman of the BEC higher level validation committee.

BTEC has also been active in the field of continuing education. The number of students on BTEC courses for units specifically designed for those with substantial work experience has continued to grow and can realistically be expected to provide an increasing proportion of BTEC's total operations. Growth has been most pronounced in the area of management and new technologies. There has been active BTEC participation in the NAB continuing education debate and the Manpower Services Commission Adult Training Initiative. Interest in alternative open learning programmes has been particularly strong in this area of the council's activities.

A major feature of BTEC's work continues to be in the area of special projects. The council inherited active programmes, including a review of BTEC national awards in business studies, an investigation into practical

work in technical and science-based programmes, and a major review into the needs of process industries. These have all been brought to a successful conclusion. New projects have included major contracts with the Open Tech Unit and an inquiry into industry's requirements for information technology technicians.

Despite the recent emphasis by government on the value of work-related education, there are still many employers and professional bodies as well as those responsible for providing education, to whom vocational education remains a second best option. The challenge to BTEC in successfully fulfilling its remit undoubtedly remains.

Janet Elliott is chief officer (educational operations) at the Business and Technician Education Council.

Business & Technician Education

BOOK REVIEWS

Motor repairs

Automobile Engine and Vehicle Technology, level I by Ian Chisholm McGraw-Hill, £7.95 ISBN 0 07 084684 7

Basics of Automotive Engines by D. J. Leeming and M. Howarth Pitman, £5.00 ISBN 0 273 01900 7

The field of automotive engineering education in colleges is characterized by part-time courses designed to complement the training received at their workplace by apprentices learning to carry out mechanical repairs and servicing of motor vehicles. In the case of technician (as opposed to craft) trainees, the college needs to be satisfied as to their ability and motivation, while employers wish to know that the cost of a technician course and the loss of a day's work are not absolute losses to their businesses, but represent an investment in future management.

The need for technically demanding courses which includes, in its latter years, subjects of a commercial nature (management, account-

cy, law, and so on). Thus, the usual BTEC provision in colleges in this field comprises a three-year national certificate in motor vehicle engineering followed by a two-year higher national certificate in motor vehicle engineering management. Appropriate design of these courses, by colleges, can provide the successful student with exemption from the professional examinations of the Institute of the Motor Industry and the Institute of Road Transport Engineers, while the Chartered Institute of Transport reorganizes the BTEC certificate for student membership.

The unit-based approach of the BTEC system has led to a proliferation of single unit textbooks - a situation which can dismay the hard-pressed part-time student, faced each year with the prospect of having to purchase and read as many as six books. In producing *Automobile Engine and Vehicle Technology*, Ian Chisholm has to some extent alleviated this situation by providing, in a single book, a text covering the two whole units of engine and vehicle technology at level I for the certificate course. A welcome aspect of this book is the clarity of the diagrams. While containing all the salient features of the assembly or system in question, they are uncluttered by the detail present in manufacturers' working drawings. In addition, the text is presented in a manner which ensures that it is easy to assimilate. *Basics of Automotive Engines* is in a somewhat different style. Although

this book also caters for students working on the national certificate course studying level I engine technology, it would also be of use for much of parts I and II of the City and Guilds of London Institute (CGLI) motor vehicle craft studies course, while the inclusion of such items as a brief historical excursion into the origins of the engine (including the steam engine) would also render it suitable for students taking a CSE in motor vehicle studies. Unlike Chisholm's book, extensive use is made of manufacturers' sectioned and exploded views of components, and a number of photographs are also included, bringing the treatment close in places to that provided in a workshop manual. A useful feature is the inclusion of relevant questions at the end of each chapter, some from old examination papers.

Despite their undoubted usefulness, however, these books enter a market already crowded with books in these topic areas. Well-established texts, such as V.A.W. Hillier and F.W. Pittuck's *Fundamentals of Motor Vehicle Technology* offer substantial coverage of the technology needed for the BTEC course.

Colin Deacon

Colin Deacon is senior lecturer in motor vehicle engineering at Farnborough College of Technology and a BTEC moderator in motor vehicle engineering.

Glorious food

Food Preparation by Clive F. Finch Macdonald & Evans, £7.95 ISBN 0 7121 0641 3

Housekeeping Supervision by Jane Fellows Macdonald & Evans, £5.95 ISBN 0 7121 0820 3

Hotel and Catering Supervision by Ken Gale and Peter Ogden Macdonald & Evans, £5.95 ISBN 0 7121 0824 6

Hotel, catering and institutional management courses were some of the last to change from the previous joint committee control to first TEC then BTEC. BTEC issued new guidelines for national diplomas and certificates in June, 1984, and will shortly issue new guidelines for higher national diplomas and certificates. BTEC's September 1984 document *Policies and Priorities into the 1990s* also has a bearing on how courses are run and managed. Those, for example, who have had only previous TEC experience will have to get used to assessing students work across several units similar to the "cross-modular" approach which BTEC practised.

The balance between subjects has also changed dramatically in some areas. The biggest change at national diploma level is certainly the growth of the elements concerned with human relations, personnel practices, social skills and supervision which have increased by a factor of at least four compared with the previous joint committee courses. The previous TEC philosophy of courses having to meet local needs is rather more relaxed under BTEC, for there is a recognition that workers in the hotel, catering and institutional industries are highly mobile. At national diploma level, there is also a recognition that students normally have no choice in which college they can attend; thus, the essential units in the new guidelines represent 22 out of the total of 25 units, leaving some limited flexibility to colleges.

The philosophy at higher national diploma level is different. In the main, students have a free choice of college or polytechnic they can attend. Also, as each institution has developed areas of special interest and expertise over many years, a greater variety of courses will be available at the higher level.

A second edition of Colin Deacon's *Accommodation Operations: Front Office* has been published in Macdonald & Evans' Hotel, Catering and Tourism series at £4.95.

These three books are part of the Macdonald & Evans Hotel, Catering and Tourism series, which aims to meet the needs of students following BTEC courses (and other courses) but also to provide up-to-date reference works for those in the business of running hotels, catering establishments and tourist services. *Food Preparation* is intended for a conventional way for a cookery book, grouping together dishes of a common type and dealing with the appropriate cooking methods for those dishes in the same chapter. At the end of each chapter there is a short section on *nouvelle cuisine* and the use of convenience products. However, although I can understand how the author will have had difficulty in trying to incorporate information on the use of convenience products, I suspect that to have all this information in one section will give students the impression that it is something to learn about as an afterthought. Similarly, the sections on possible problems and how to avoid and correct them should really be read by the student before attempting to prepare a dish. Comments on *nouvelle cuisine* might better have been left with just the comments in the introduction, plus a reference. As the book does not cover the majority of the information needed for the food units in BTEC courses, it will be interesting to see if the series is extended to include a text which covers kitchen planning, organization, supervision, and food and beverage management.

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previous BTEC national diploma programmes, the changing nature of these (with the publication of new guidelines) immediately dates the text. The use of the word "supervision" in the title is rather misleading, as the text falls to bring this subject to the fore. Indeed, the chapters seem to be a collection of unit topics, lacking any integrating theme. For me the chapters on economics and finance fit uncomfortably with the remainder of the book. This does not detract, however, from the general usefulness of the book, particularly as an aid to revision.

Geoffrey Cowell

Geoffrey Cowell is dean of the faculty of business, food and management at Blackpool and Fylde College, a member of the BTEC Council, and chairman of the hotel and catering sub-committee.

BTEC Books from Edward Arnold

The Science of Catering by J. A. Stretch and H. A. Southgate Paper 224 pp £8.95 approx 0 7131 7451 5 Pub: June 1985

A comprehensive text covering the background science of all aspects of the catering industry.

Communications in Catering Practical Guidelines and Assignments for Students in the Catering Industry by Shelagh Small Paper 80 pp £2.95 approx 0 7131 744 9 Pub: June 1985

A full one-year course in English and Communication work for Hotel and Catering students.

The Theory of Catering: Fifth Edition by Ronald Kinton and Victor Cesarani Paper 448 pp £8.75 0 7131 0985 8 Boards 448 pp £11.95 0 7131 0984 X

Extensively revised and extended new edition of this well-known text.

Questions on the Theory of Catering: Second Edition by Ronald Kinton and Victor Cesarani Paper 96 pp £2.50 0 7131 7303 3

New edition to complement the new Fifth Edition of *The Theory of Catering*.

Basic Pastrywork Techniques by G. Nicol Paper 224 pp £4.50 0 7131 0980 0

A simple introduction to pastrywork theory and technique for the novice and non-specialist.

A fourth edition of Bernard Chandler's *Motor Vehicle Workshop Organization and Administration* has been published by Oxford University Press at £4.95.

A little legal advice

Public Law by T. J. Groult Macdonald & Evans, £6.75 ISBN 0 7121 1759 8

Business Law: a workbook by G. M. Affey Macdonald & Evans, £5.50 ISBN 0 7121 2404 7

Lecturers in further and higher education are chosen for their experience and qualification for the task in hand. It is a curiosity that the publishing world tends to identify as advisers and writers individuals who would seem on the surface to have little or no experience of the market at which the particular textbooks with which they are involved might be aimed.

The BTEC national award is sought by young people entering a course of study at 16 plus. These courses continue for two years and are taught in colleges of further education and, to a lesser extent, schools. Although these two books are aimed at the BTEC national market, the publisher has chosen two writers from polytechnics and an advisory board of educationists are unlikely to have any experience of the BTEC national market.

Mr Groult of course claims in his introduction that his book may be used for levels other than BTEC national - including higher BEC (sic), professional, degree, and A level courses. Though common enough, this is a fairly spurious claim, given the essential peculiarity of the BTEC student-centred approach. Indeed, the author recognizes this particular constraint by providing at the beginning of each chapter the "objectives" of the module and, at its end, self-assessment questions and assignments designed "to carry the learning process beyond the confines of the book".

Unfortunately, these questions and assignments are occasionally unrealistic and aimed at an inappropriate level of activity or personal identification. To suggest to a BTEC national student that he or she should assume the role of a civil service adviser to a minister of the Crown, or an adviser to a trade

union or a college board of governors, in writing an assignment, stretches levels of credibility to the utmost. Such august bodies rarely take advice from 17-year-olds, even if they are capable of addressing themselves to the issues involved. Equally, some of the language and information used is hardly appropriate to the average BTEC student, with many concepts left unexplained.

Having said this, however, the text itself is clearly written and set out, and adequately covers the content of the BTEC option module in public law. Its clarity of approach will commend it to BTEC national students, even though it can hardly claim to be "student-centred" in its development. It demonstrates in fact a normal textual approach both in its development of argument, language, and legal illustration. It does nothing, however, to extend BTEC "philosophy" in terms of encouraging students to develop their own skills, self-awareness, and understanding of the business world. It is a valuable and concise textbook masquerading under a BTEC banner.

The polytechnic-based author of the business law workbook has had previous teaching experience at a college of further education and is clearly conscious of the inherent difficulties in attempting to marry student requirements, as emphasized by BTEC, to printed materials that will support basic texts. The workbook consists of assignments and revision questions "of varying levels of difficulty". The revision exercises are a series of straightforward questions which may be answered by short statements of fact or lists. This approach must be seen as no different from any "revision questions" system which any lecturer might use as an aid to learning and testing. The BTEC market, however, demands a more emphatic approach in the assignment programmes, and this the author provides in his development of the material.

The signed and the tasks demanded of the students are largely irrelevant. Cross reference is made to the supporting text in the author's own *Business Law* from the same publisher, and praiseworthy attempts are made to make relevant the difficult areas of business property and consumer credit.

Roy Lewis is principal of Wigan College of Technology.

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BOOK REVIEWS

Money, money, money

Elements of Banking, levels I and II
by David Palfreman and Philip Ford
Macmillan & Evans, £7.95
ISBN 07121 05999
An Introduction to Banking
by Brian Jacob
Holt, Rinehart & Winston, £5.50
ISBN 003 9104176
Mastering Banking
by D. P. Whiting
Macmillan, £10.00 and £3.25
ISBN 0333 36911 4 and 36912 2

Although all three of these books have been written for the elements of banking syllabus, as all the authors point out, they will also be of interest to anyone who wishes to read generally about the fundamentals of banking and finance.

Elements of banking as a subject was introduced into the stage I conversion banking course in the mid-1970s and is still one of the four subjects that make up the banker's conversion course. Over the years, however, it has been adapted to satisfy the requirements of BTEC. This has been primarily at national level, although it is a module on certain full-time higher national diploma courses — for example, on the BTEC banker's course at Liverpool Polytechnic. Since the subject was introduced, the Institute of Bankers (IOB) has appreciated its great importance in the education of banking students at the lower level and as a consequence of this, a two-year module for the BTEC national has been developed. In itself, I think this was a wise move, for it has enabled basic banking and finance themes to be introduced and developed. Development is essential to provide banking students with a foundation for the more difficult stage II IOB examinations. As written, however, the module presents two problems and I do not think that any of the books sort those problems out. First, to what extent is there overlap between say the economic

part of this syllabus and the economics which features in business environment and/or monetary economics. Second, to what extent is year II (or level 1) material repeated in year II. Over and above this, there is the potential conflict of objectives between BTEC and the IOB. Palfreman and Ford's book has been written expressly for the newly designed two-year module. The authors have followed the syllabus rigidly and produced an academic masterpiece. They have done much research and put a lot of thought into presentation. The book neatly divides itself into two sections and treats all the topics in considerable depth. Each chapter begins with a clear definition of objectives and concludes with a summary, a series of self-test questions and a few assignments — a style of presentation that will enable students to acquire in-depth knowledge of the subject-matter. For students at BTEC national level, however, there may be too much information for them to absorb and some of it may be too complex. For example, there are 28 pages on land, and in the chapter on financial statements some extremely complex balance sheet data are presented. But if the students can master these (and other) topics, then it augurs well for their chances of passing the stage II examinations at the first attempt. The authors present a lot of tabular data, and where necessary specimen documents are illustrated. Students should find this helpful, because the majority of these studying this module will either be processing cheques or be cashiers and would not usually get an opportunity to see security documents. I am impressed by the academic content of this book and would certainly recommend it to my higher national diploma group. The only thing it lacks is a wider range of student-centred assignments of the BTEC sort, with some indication of how students' submissions should be assessed.

Although Jacob's book is neatly packaged in three progressive stages, it is nowhere near as comprehensive. For a level entrants to this module, however, it will be an easier book to read and understand. The text is supported by many tables and an adequate range of specimen documents. As before each chapter begins with a section outlining 'objectives' and ends with a wealth of assignment material, although the majority of these are not in the student-centred style which BTEC encourage. Finally, to show that all BTEC's learning

objectives of the module have been covered in the text, a reference table is provided.

Whiting's book, about the same length as Jacob's, is divided into sections. As the author's style is somewhat similar, O level entrants should find the text easy to read and understand. It is not as well presented as the other two books and contains few tables and specimen documents. Some of the topics are not treated in sufficient depth — for example, general personal banking services are only afforded two pages. However, each chapter is concluded by a section on 'topics for discussion', which can form the basis for BTEC assignments. A range of legal cases and statutes is quoted, and tables of figures are provided. Finally, an impressive chapter looks at future developments in banking.

Palfreman and Ford's book is best suited to post A level students. For those on BTEC national courses (the is, O level entrants) the simpler style and presentation of Jacob is more suitable. For BTEC courses, however, each would need to be supported by additional assignment material (IOB assignments booklet is available). Obsolescence is a problem: already some of the tabular data are about the year old.

Although in the past I have always found David Cox's *Success in Elements of Banking* (John Murray, second edition, 1983) to be the best for my students, next year I will consider using Palfreman and Ford's book. The book which the IOB favour is the late F. E. Perry's *The Elements of Banking* (1983/Methuen, fourth edition, 1984). On the subject of the continued conflict of objectives between BTEC and the IOB, the former are looking to students to acquire knowledge and at the same time prepare themselves for stage II. The latter are looking at how students approach problems and solve them. Whether it is ever going to be possible to resolve these conflicting aims remains to be seen, but I think it is that it never will be and some stage in the not too distant future, the two parties may go their respective ways.

Philip Gerrard

Philip Gerrard is senior lecturer in banking courses tutor of the BTEC higher national diploma banks course at Liverpool Polytechnic, and deputy-principal of the Liverpool School of Banking.

Learning by doing

BTEC Study Guide for Microelectronic Systems, level I
by Glyn Martin and Nick Heap
Technician Education Council: Hutchinson, £4.95
ISBN 009 154541 2
BTEC Study Guide for Microelectronic Systems, level II
by Glyn Martin
Technician Education Council: Hutchinson, £4.95
ISBN 009 158881 2
Further Practical Microelectronics by Peter Simmons
Technician Education Council: Hutchinson, £6.95
ISBN 009 151671 4

How much do technicians need to know about microprocessors and microelectronics? The question is similar to the perennial poser — how long is a piece of string? The answer is, that 'it depends on the application'. An individual must have sufficient knowledge to meet the immediate need. As microprocessor applications are changing rapidly, individuals will need to extend and update their basic understanding in the future, so that the level of knowledge gained now must form a secure foundation for future learning by either formal or informal learning methods.

Microprocessor techniques and microelectronic systems are now an integral element of the majority of courses in electronic engineering. In mechanical and production engineering, they are often a secondary subject introducing via subject titles such as microprocessor appreciation or microcomputer applications. Teaching 'micros' can either be lecture dominated, with a minimum practical input; or the emphasis can be on 'learning by doing' where the lecture programme is used to introduce topics and concepts which are developed during practical sessions. The teaching method is dictated by the equipment and staff resources available, institutions with well equipped laboratories tending to emphasize project work.

The Business and Technician Education Council (BTEC) has developed a set of standard units covering microelectronic systems at levels I, II and III, and microprocessor-based systems at levels IV and V. Level I students should be able to design and build a simple microprocessor-based system. Most 'courses' complement these core studies with additional units in such subjects as robotics, fault finding, high-level programming languages, interfacing, and projects. Units on analog and digital electronics are also essential.

The demand for technicians and engineers with 'micro' knowledge is leading to an increase in 'micro-based' syllabuses in most programmes. Units can also form the basis of specialized courses to meet the needs of local industry. The most effective teaching method at technician level is 'learning by doing', which requires either a well-equipped laboratory with a structured work programme or a schedule based on an inexpensive and readily available item of equipment. Experience gained in a practical environment is an essential part of the training of a 'micro' technician. As many microprocessor textbooks adopt a theoretical approach, using diagrams and several case-studies in boxes to break up the text, although some do not communicate their mes-

G. A. H. Thomas

G. A. H. Thomas is a principal lecturer in microelectronics at Middlesex Polytechnic.

Business & Technician Education

BOOK REVIEWS

Shop floor

Control of Manufacture, level III
by David Evans and Roy Ford
Holt, Rinehart & Winston, £6.95
ISBN 003 910424 9
Manufacturing Technology, level II
by Neville Burrows
Holt, Rinehart & Winston, £5.95
ISBN 003 910423 0
Materials Technology, level II
by R. L. Timings
Longman, £4.95
ISBN 0582 41339 7
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Although David Evans and Roy Ford's book has been written to cover all of the topics in the BTEC level III half unit U83/188, it also covers most of the objectives set out in the new production planning and control level IV unit U83/189. It is well written, each chapter covering the material in satisfying detail. Intellectually, it stands much closer to level IV than level III. Indeed, the book often extends the subject-matter beyond that required for the level III unit: for example,

chapter three on the structure of organization, covers such topics as the use of models, organization charts, types of organizational structures, organization of a typical firm, the organization of production, job descriptions, job evaluation, training and performance appraisal.

The book covers virtually all of the material required by the level IV unit, with the significant exception of the new technology section on management information systems. It also has only a few words to say about critical path analysis. It will be irritating, therefore, to have to find another source book for the remaining part of the level IV unit. With very little editing — for example, the removal of one or more chapters such as value analysis and ergonomics, and the addition of a chapter on management information systems and some further material on network analysis — the book would more than adequately cover both units. Even so, this is a very good textbook which I would commend to both lecturers and students, especially those concerned with full-time courses. I do find it astonishing, however, that new textbooks are being published in the field of manufacture which make no mention of any aspect of new technology.

After working through Neville Burrows's book, the student should have no difficulty in achieving all of the objectives prescribed in the manufacturing technology unit U80/737. The material required to achieve each objective is set out in an uncomplicated style, supported by clear and readily understandable diagrams. In addition, the book makes a significant contribution to self-directed studies. Each chapter contains a consolidation section summarizing the main points, followed by a series of questions (with detailed answers) and activities — self-assessment questions, data response questions, graded worked examples,

and BTEC assessment questions and assignments. The lecturer could use the book as a series of notes, obviating the need for dictating notes or issuing handouts and thus leaving ample time to develop the subject on the basis of discussion, assignments and student feedback.

This is a very good textbook in relation to U80/737 as the unit stands. But again, although it covers significant aspects of basic technology of vital importance to any technician, the unit is dated in terms of the application of new technology to control. The process of development, however, is based very much on the publication of a new unit. Textbooks then tend to follow this unit with little or no development of subject-matter, so newly published textbooks become more and more out of date as the unit increases with age. The system of unit development should be based, in part, on the process whereby units are as up to date as possible at the time of issue. The introduction of a new unit should then be followed by the publication of textbooks which not only follow the BTEC objectives but which also embody the latest relevant technology. As textbooks begin to reveal that the unit is out of date, the unit should be withdrawn, revised and republished.

R. L. Timings's book has been written specifically to cover the requirements of the BTEC certificate in the mechanical and production engineering essential core unit U80/738 on materials technology at level II. The student objectives of this unit deal with crystalline structures, binary equilibrium diagrams, eutectic structures, precipitation and coring, the iron carbon system, heat treatment, cast irons, non-ferrous alloys, and polymeric materials. Timings has covered all of these requirements in a clear and concise manner in a compact and extremely well organized book. I do feel, however, that more could be

done to aid the student in self-directed study. The few questions at the end of each chapter do not do justice to the careful and well conceived contents of the text. Although there are many areas of development in self-directed studies — case studies, assignments, programmed learning, and micro-computer software, for example — the development of textbooks which combine an integrated information source and a dynamic learning strategy as part of their structure, has not yet been seriously investigated by authors or publishers.

George Tomlinson's book is intended for craft and technician trainees entering a workshop environment for the first time. Though written in a simple and straight-forward manner, it does not patronize its readers and would be most useful for those studying CSE, GCE and City and Guilds of London Institute (CGLI) courses. Lecturers looking for a textbook to cover the level I workshop processes and materials unit U80/681 will find only about half the material they require. There is no coverage of the centre lath, machine cutting tools or plastics; but the coverage of safety hazards, hand tools, measurement, marking out, communications, drilling machines and fastening and joining is excellent. The emphasis is on the practical application of basic workshop processes and the reading of engineering drawings, making three-dimensional sketches, and the use of hand tools. In the otherwise very comprehensive section on safety, however, there is no reference to hazards associated with electricity and electrical equipment. As the addition of chapters on lathwork and a little more material on plastics would make it quite a useful basis for a study of the BTEC level I unit.

Harry Ogden's books provide an initial course of studies for young people entering the first year of train-

ing in mechanical and electrical engineering. They are suitable for students undertaking studies for CGLI basic engineering craft studies, pre-vocational training, and Youth Training Schemes. They would also provide suitable preparation for students wishing to follow BTEC courses in mechanical and production engineering. *Workshop Science and Materials* covers mass, force and moments, friction and lubrication, temperature and heat, basic electricity, properties testing and use of materials, and corrosion and surface protection of steel. *Numeracy* deals with SI units, operations with decimals, fractions, percentage, average, ratio, and use of tables. There is a number of worked examples giving step-by-step solutions to a wide range of problems; and each chapter concludes with a set of exercises to which answers are provided. Ogden includes a number of computer programs in an appendix to each book; and the book on numeracy contains a section on microcomputers, the programs for which are short, written in BASIC and can be run on a Sinclair ZX Spectrum.

Both lecturers and students will be grateful for these very readable books which can double as classroom textbooks and form a basis for self-directed study.

Peter Scott-Howes

Peter Scott-Howes is head of the department of mechanical, production and aeronautical engineering at Farnborough College of Technology, and a member of the BTEC engineering board.

Second editions of three books by R. L. Timings have been published by Longman: *Workshop Process and Materials, level I*; *Manufacturing Technology, level II*; and *Manufacturing Technology, level III*, all at £4.95.

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Business & Technician Education

BOOK REVIEWS

Building studies

Advanced Building Construction, volume one by C. M. H. Barrill Longman, £4.95 ISBN 0582 413168
Contractual Procedures for Building Studies by Colin Seal Holt, Rinehart & Winston, £5.95 ISBN 0039105202
Construction Mathematics, volume one by B. W. Boughton and P. J. Ballard Granada: Collins, £4.95 ISBN 0246 121254
Construction Science, volumes one and two by B. W. Boughton and Dennis Goodfellow Granada: Collins, £4.95 each volume ISBN 0246 121270 and 121289
Design of Structural Elements, level IV by Brian Currie and R. A. Sharpe Macdonald & Evans, £8.50 ISBN 07121 04437

All these books have been written specifically for the standard units prepared and published by BTEC. Such books have an undoubted advantage over the more general textbooks covering the several disciplines. The author, having accepted the constraints of a BTEC standard unit, is able to sift, select and synthesize a programme of learning which matches in duration and content the aims of the unit. There are, however, disadvantages: for example, the student may be tempted away from books which deal more exhaustively with a particular study area within the unit; the unit itself may have been updated and rewritten by BTEC subsequent to the publication of the book. A classified bibliography and a clear and unambiguous statement as to which standard unit the book relates are essential.

The study of building construction has its roots in the building crafts and one of the earliest manuals entitled *Mechanic Exercises or the Doctrine of Handy-works* was written by Joseph Moxon in 1678. In the nineteenth century it became necessary to integrate the crafts and this encouraged the production of books spanning traditional boundaries. The earlier publications were in the form of copy books showing examples of typical constructional forms. The next generation developed techniques which enabled the student to invent methods of construction from a library of proved details. The subject is now studied from scientific principles and production methods and this theme is developed in Barrill's somewhat discursive but nevertheless carefully considered book, which explains "why" and, using an abundance of freehand sketches, demonstrates selected examples of "how".

There are sections on information retrieval, building standards and control, material inspection, and storage on site. Both the substructure and the superstructure are dealt with in some detail; and finally there is a section dealing with external works. The text follows closely the syllabus comprising BTEC building technology at level IV and with its bibliography is a suitable aid to those endeavouring to achieve the stated aims of the unit. Unfortunately the level IV studies in this subject have recently been re-written and expanded into building construction AIV and building construction BIV. The new units not only double the designed length of study but also the syllabus content has been significantly amended. The author acknowledges the deficiencies and has undertaken to make them good in volume two, which will also include the studies required for unit level V. It will be a substantial publication which is eagerly awaited.

Seal's book is much more than a course text for the BTEC unit on contractual procedure at level IV. It is essential reading for all students studying for degrees, higher national diplomas and professional qualifications in the construction sector. It can also be highly recommended to practitioners in the industry. The dedication of the author in bringing together the many aspects of contractual procedures is impressive. It is purpose made for an industry which is becoming increasingly involved in legal matters. Contents include formation of a verbal contract, contract terms, discharge of contractual obligations, remedies for breach of contract, and agency. Another new and complementary text is D. Wood's *Basic Construction and Survey Law* (Granada, 1984).

Boughton and Ballard's claim that their book covers the contents of BTEC units on mathematics I, analytical mathematics II, mathematics (III) and mensuration II is fully justified. Their secondary claim concerning the book's application to elements of the units on organization and procedures II and site surveying and levelling II is also substantiated, but somewhat modest since the mathematical tool may be used in many other units in construction comprising the BTEC certificate and diploma programmes. The stated aim of the book is to develop confidence in using mathematics associated with technicians' activities. The areas of study include arithmetic, algebra, graphs, quadratic and cubic equations, progression and series, geometry, trigonometry, and mensuration.

This excellent book demonstrates very clearly how an understanding and the application of mathematics may be achieved. In each section a mathematical problem is carefully developed stage by stage and this is followed by its application to a construction problem. The book can be unreservedly recommended to all students embarking on certificate or diploma courses in the construction sector. It also provides a

useful revision course for students lacking confidence in mathematics, who intend to undertake studies in construction at degree or higher diploma level.

Boughton and Goodfellow's two books are intended to present the construction science necessary for the completion of a certificate or diploma in building studies. Volume one covers the contents of BTEC units on physical science I, construction science II and materials in construction II, together with elements of the units on construction drawing I, construction processes I and construction technology II. The authors have therefore set themselves the task of underwriting programmes of study which include: the development of an understanding of the fundamental physical science concepts; an acquisition of the concepts of chemical reaction, elasticity, static equilibrium, pressure, straight line motion, waves, energy and electricity; a good working knowledge of construction materials and those aspects of science which relate particularly to the construction, design and production process.

Although this effort is commendable and the relevant sections are all included, some are in a truncated form. So, despite the claim to the contrary, the authors have provided yet another vehicle for learning by rote. They have taken a fascinating and practical subject and transformed it into a discursive exercise relieved only by some desk-top calculations and the one redeeming feature - the assignment.

The BTEC units to which this publication relates all require the studies to be laboratory based.

The contents of the book are sound, accurate and well written. It is a good standard textbook for a programme of learning, provided the teaching is undertaken by an enthusiast who prefers the laboratory to the classroom.

Volume two covers applied mechanics III, environmental science III and structural mechanics II, together with elements of building construction III and mathematics III. Because there is some overlap in the content of the units, the authors have been able to produce a more comprehensive treatment of areas of study than was possible in volume one. The procedures and quantitative analyses are clearly set out stage by stage, these are easy to follow, and the diagrams are unexceptional. Boughton and Goodfellow state in the introduction that their intention "is not just to feed facts but to promote logical thinking and this is enhanced by the inclusion of case studies throughout the book". In this laudable aim they have achieved some success, although reference to laboratory work is still very hard to find. It is a pity, however, that the examples chosen throughout the text do not illustrate how good design and constructional detailing based on accepted scientific principles is instrumental in providing buildings which will enhance the quality of life.

Currie and Sharpe's well-illustrated book has been written primarily to

meet the needs of students undertaking the BTEC unit on design of structural elements at level IV. The aim of the publication is to describe how available information is used in order to provide a solution for the design of structural elements at level IV. The section on reinforced concrete includes limit state design, beams, slabs, columns, foundations and retaining walls. This is followed by a section on structural steelwork showing design methods for bolted and welded connections, beams, girders, roof trusses and lattice girders. There are also sections on timber and blockwork designs, but these are brief and give the impression that, as structural materials, they are considered inferior.

This is a useful book: the individual design of structural elements is given adequate coverage and references are made to the codes of practice at different design stages. Students should find the self-assessment questions useful in consolidating knowledge; and lecturers will find the book equally helpful as a guide and aid in assessment.

Peter Clark

Professor Clark is head of the department of building and environmental health at Trent Polytechnic, and a member of the BTEC cross-sector committee for development and review.

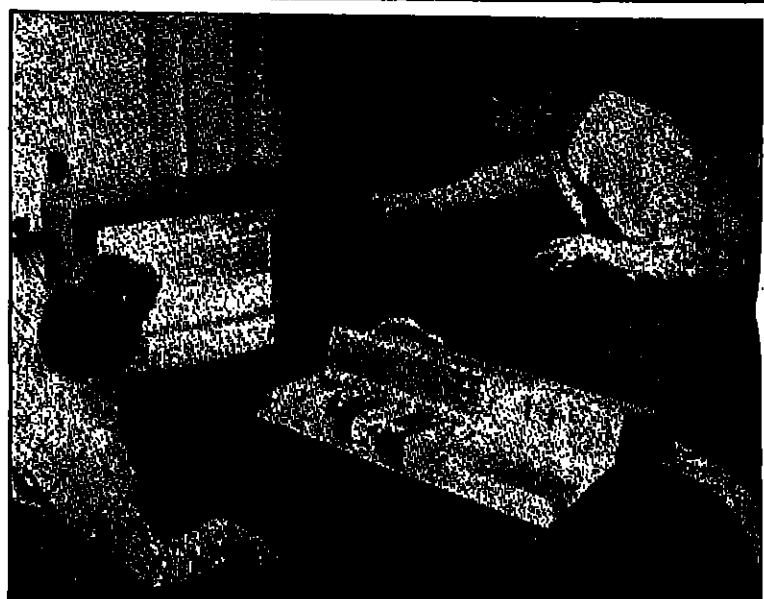
Data processing

An Introduction to Program Design using JSP by Rod S. Burgess Hutchinson, £6.95 ISBN 009 1549612
Fundamentals of Computing by Neil A. Sheldon Hutchinson, £5.95 ISBN 009 1545315
Data Processing Methods by Barry S. Lee Hutchinson, £6.95 ISBN 009 154971X

The computer industry is well known for rapid growth and development; factors which must be reflected in the evolution and development of BTEC computer studies courses. The specification for national level courses is currently being reviewed, while new guidelines for higher national courses outlined at two special conferences should be published shortly. A major change incorporated in the new guidelines is to give colleges the flexibility to design courses for a variety of orientations. In particular, courses with an emphasis on industrial computing will be possible. BTEC courses will then be able to meet the requirements for software engineering in the area of process control and related applications, as well as the traditional area of business data processing and information systems.

As the technology advances, new methods and techniques evolve to use it more effectively. Basic principles are more stable but have to be applied in new environments. Books need to be regularly updated or new ones written to incorporate the latest developments, not only for the computer specialist but for all students for whom a knowledge of the application of computers and their potential is important.

During the past few years, techniques of structured programming have become generally accepted and used as a means of ensuring that programs are well designed and thus easy to understand, test and modify. One such technique, widely accepted by both academics and industry, particularly for Cobol programming, is Jackson's structured programming (JSP). For students learning JSP, Rod Burgess's book is a valuable introduction, as it gives a clear, well-illustrated explanation of the basic techniques. The many examples (with solutions) will be especially valuable for students in a subject where practice is a necessary prerequisite to learning. However, it is only an introduction, dealing with the types of program to which JSP is particularly suited. Thus, although it provides a



From the second edition of Daphne Gaffen's *Administration in Business* (Holt, Rinehart & Winston, £4.95).

more detailed treatment of the basics than Leif Ingevaldsson's *JSP: a practical method of program design* (Chartwell-Bratt, 1979); it does not include the more complex applications outlined in Ingevaldsson's book.

For many BTEC computer studies courses, the content relating to computer hardware is only required to support a study of computer applications and software in business. For others, a more detailed treatment is required for students on the former type of course, students requiring a basic understanding of the functions rather than a detailed knowledge of the electronics, that Neil Sheldon's book is intended.

For students, for whom the inclusion of too much detail can obscure the main points, deciding the amount of simplification required is not easy; but here the author has for the most part achieved an acceptable level. I was surprised, however, that the examples of miniframe and mainframe computer architecture discussed are the DEC PDP 11 and the IBM 370 series, both of which date back to the 1970s. Also, in the sample questions at the end of each chapter, the author includes material not previously covered in the text. Although such techniques can be controlled by the lecturer, it is also inappropriate in a text designed to support a course. The book would certainly be suitable for many courses, but some students may find the slightly more detailed treatment of

techniques for the analysis and design of computer-based business systems; they must first appreciate both the nature of the problems to be solved and the form of an acceptable solution. This can be a stumbling block for full-time students without commercial or industrial experience, who should therefore find Barry Lee's book valuable. Being aimed primarily at students on BTEC higher national computer studies courses, it gives an adequate coverage of basic principles and techniques underlying data processing applications.

The strong points of this book are its coverage of security and integrity and the detailed examples of microcomputer, minicomputer and mainframe computer applications. These examples are simplified versions of systems actually implemented, containing an appropriate level of detail to enable the systems to be understood without losing their relevance. The problem with this book, as with others in this series, is that it is unlikely to be sufficient on its own to cover a full module of a BTEC higher national computer studies course. Books such as C. P. Clare and Loucopoulos's *Data Processing: current theories and practice* (Abacus Press, 1983) cover much the same ground, together with a lot of additional material. Lecturers, however, may find Lee's book useful in putting flesh on the bare bones of data processing.

Brian Aspinall

Brian Aspinall is senior lecturer in computer science in Coventry (Lanchester) Polytechnic, Coventry, and a moderator for BTEC higher national computer studies courses.

BOOK REVIEWS

Science strategies

Study Notes for Technicians by J. B. Pratley Physical Science and Physics, volume one McGraw-Hill, £4.50 ISBN 07 0848580
Mathematics, level I McGraw-Hill, £3.95 ISBN 07 0846820

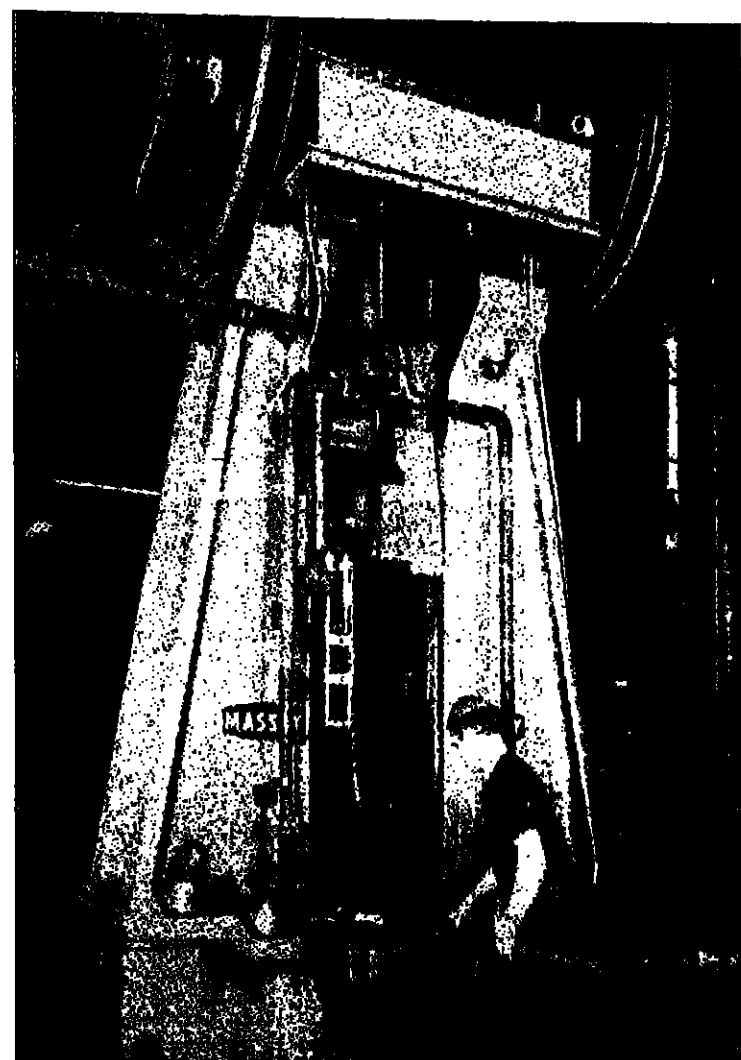
The Business and Technician Education Council (BTEC) was formed on October 1st, 1984, by the merger of the Business Education Council (BEC) and the Technician Education Council (TEC). The new body published a policy statement in September 1984 *Policies and Priorities into the 1990s*. This document makes it clear that BTEC does not intend to make radical changes to the policies and arrangements devised by BEC and TEC.

BTEC has also stated that its courses can be either unit based or "grouped" as was the case with TEC programmes, and that for unit-based programmes, a unit will have a notional length of 60 to 90 hours. Again, this is very similar to the decisions made by TEC. Units will be allocated a level denoting a sense of progression - so that, for example, a level II unit will assume achievement at level I. Again, this follows the practice established by TEC. In short, the new BTEC structures for national and higher national awards are unlikely to be significantly different from those devised by TEC for areas such as engineering, building and science.

Level I is the basic level of programmes devised for these areas, and in the case of physical science and mathematics is a level from which students can be given exemption on the basis of suitable GCE O levels or equivalent.

The Joint Board for Pre-Vocational Education - jointly administered by the City and Guilds of London Institute (CGLI) and BTEC - has already published a consultative document on its new qualification, the Certificate in Pre-Vocational Education (CPVE). This new development allows for a one-year course, post 16, for those who have not yet made a specific career decision. The CPVE will subsume a number of other, existing, courses notably aspects of the CGLI foundation course provision and the general award of BTEC (formerly the BEC general course).

The CPVE is a broadly based, integrated, course which, though currently only to be available to full-time students, might be extended to part-time students for 1986 or 1987. The point to make here is that there must be a measure of uncertainty over the future of level I units. If CPVE were to



Drop-stamp, from the second edition of R. G. Timings's *Manufacturing Technology*, level II (Longman, £4.95).

be made available both full-time and part-time, and as BTEC has announced it is to withdraw its general award in favour of CPVE, then there might be advantages in subsuming level I BTEC units into CPVE as well. BTEC has yet to declare its position on this issue, but until it does, it is worth considering any book designed for these units in relation to the CPVE framework as well.

Mr Pratley's books are designed to be study notes, that is, they are intended to replace the notes students might make for themselves during lectures. They also provide exercises and problems for students to work through. The text is clear and precise and the exercises well thought out and suitably graded. The author has succeeded in the task he set himself. It must be said, however, that these two units (physical science and mathematics at level I) are the two most widely used in the (former) TEC programmes and as such have attracted many books all covering the same material in much the same way. Although these two

volumes are competently written and would undoubtedly be useful to students, there is little to distinguish them from the others also available.

CPVE would seem to be inviting a new look at teaching styles and strategies. A greater emphasis on integration and student-centred work would indicate a need for a different sort of book. Much is yet to be resolved over the future of this type and level of work, particularly whether it remains as part of BTEC awards, or is subsumed into CPVE. It does seem likely, however, that the CPVE curriculum philosophy will exert a considerable influence, whatever the decision. What would seem to be the direction in which syllabuses might progress over the next few years indicates a need for a new type of support from authors and publishers.

Norman Riches

Norman Riches is senior inspector for further education in Lincolnshire.

Business skills

Case-Studies in Business a skills-based approach by Sheila May Pitman, £5.50 ISBN 0273 019414
Cross-Modular Assignments for BTEC General by Lucy Meade Student's Book Heinemann Educational, £3.25 ISBN 0435 450743
Teacher's Book and Reproduction Masters Heinemann Educational, £6.25 ISBN 0435 450751
Multiple Choice Questions for Business and Commerce by R. P. Jones Edward Arnold, £1.95 ISBN 07131 09815

When, in the late 1970s, Business Education Council (BEC) courses came into being it was soon realized by lecturers in further and higher education that the programmes, in providing new opportunities and approaches for

students, would offer a challenge to all staff in adopting the new curriculum and methodologies. Much of the new curriculum required an approach to subject-matter which went beyond traditional discipline boundaries and there was a dearth of suitable textbooks or sources of assignment materials.

In essence the new approach was to place more emphasis on the course as a whole, allowing the students to develop skills and knowledge in the context of the total business. In emphasizing also the need for courses to be more student-centred, it was inevitable that the "assignment" became more significant than the "exercise" or "homework" had ever been. That the use of skills-based assignments has extended beyond business education into a variety of other fields is a measure of the success of that approach.

In the early days there was a great dependence on case-studies or case-problems. Because of the time taken to develop such materials, however, there was much reliance on published material while lecturers learned to cope with their own problems relating to a more integrated, business-related curriculum and the revision of many of their teaching programmes. As the case-study approach had been used for many years in management education, a wide variety of texts was available.

However, many proved unsatisfactory, except as sources of ideas for assignments, because they could not easily be related to students' particular needs and in many instances required much adaptation in order to clarify the skills to be developed.

In this context, Sheila May's book proves somewhat frustrating. After a useful beginning which pulls clearly together the need for students to develop problem-solving and decision-making skills, there then follows a rag-bag of case-studies drawn from a variety of sources. Although this text may be of some use for more traditional general management courses, the lack of a role-playing requirement and the implied use of only of essay answers seems to make it of little immediate use for BTEC courses.

This is very disappointing given BTEC's own statement in its March 1980 document *Assessment and Examination in BEC Awards* that "Given BEC's requirement for business relevance it follows that the inclusion of a significant element of case study is likely to provide an effective examination paper." May's text also does not meet BEC's requirement for "Situations, the context of which are understandable to students from their first-hand experience."

Many publishers have encouraged their authors to come to terms with students' special needs, as evidenced

Design process

The Engineering Design Process by Barry Hawkes and Ray Abinett Pitman, £7.95 ISBN 0273 018957

There are no child prodigies in the engineering design field. The necessary breadth of knowledge, experience and understanding to take any design from conception to production cannot be gained by narrow intellectual application. This is compounded in engineering design by the requirement to assure a specified performance before manufacture begins.

For most of this century that requirement has led engineering education into an increasing emphasis on analytical capability at the expense of the development of the ability to appreciate that wide range of expertise which made the Stephenson and Brunel so successful in Victorian times. More recently, and particularly during the past decade, the pendulum has begun to swing back, with more emphasis on practical application and particularly on design.

Although a few books have aimed at giving the broader-based, non-technical designer an appreciation of engineering problems, particularly in production, this book is one of the first to attempt to illustrate the breadth of the design process to engineering students in their own terms. However, as no single book could cover the whole engineering field, Hawkes and Abinett have concentrated on mechanical engineering - widely regarded as the core area of engineering education, particularly at the higher technician and first-year degree levels at which this book is pitched. They assume no great technical knowledge but only a familiarity with requirements expressed in figures and an understanding of engineering drawings.

The book takes the systematic approach common to most engineering topics and applies it to the design process. The apparent opposites of careful step-by-step design evolution and "wild idea" brainstorming are both shown to have their place in the spectrum of techniques used to move from the first realization of a requirement to the complete set of manufacturing, operating and servicing instructions needed to make and use a new product. These approaches to the design task are described in the first chapter and provide the introduction and linking theme for the main part of the book.

Before discussing individual design topics, the authors briefly describe the company environment where design takes place and a few of the organizational techniques used to manage the activity. This is immediately followed by a review of the problems of design

for economic manufacture. These two sections alone contain more than can be found in most management texts on the control of design activity, where virtually all manufacturing costs are determined.

The main body of the book covers the manufacturing problems of dimensioning, the practical application of theoretical analysis, and computer applications, as well as the less technical topics of ergonomics, the use of models, and aesthetics. Most chapters have extensive examples drawn from various industries to illustrate their message and a set of problems, many open-ended, to give students some experience of application.

The book ends with a detailed design case-study of a small concrete mixer for the do-it-yourself market. All of the techniques described in the book are needed, even though this product would not be regarded as a particularly difficult engineering exercise to the novice. A series of design assignments are then given for fairly simple products, sufficient detail being provided for student groups to carry out their own design exercises.

Although this book forms an excellent introduction to design for engineering students, there are very few references to allow the subjects covered to be taken further except for immediate sources and a few British Standards. Indeed, the authors have fallen into the trap of summarizing topics so clearly that students may well be left with the impression that there is little more to learn.

For aspiring engineering technicians this book forms a useful companion volume to *Engineering Design for Technicians* by the same authors and publisher. Students of the chartered branch of the engineering profession will also find it necessary reading in the absence, as yet, of an adequate range of texts on design topics that would link the well-researched fields of engineering analysis with their industrial applications.

Colin Ledson

Colin Ledson is senior engineering design education officer at The Design Council, and editor of *Engineering Design Education*.

A third edition of W. Schofield's *Engineering Surveying 1* and a second edition of his *Engineering Surveying 2* have been published by Butterworths at £15.00 and £15.95, respectively.

A fifth edition of R. J. Bull's *Accounting in Business* has been published by Butterworths at £11.50; and a second edition of John Downie's *Nutcracker and Accounting* has been published by McGraw-Hill at £5.95.

Second editions of books one and two of *The Business Organisation and its Environment*, by Matthew Glew, Michael Watts and Ronald Wells, have been published by Heinemann Educational at £3.95 each. For a review of book one, see *The TES*, March 2, 1984.

doing highlighted the problems for lecturer and publisher alike. The good assignment will be based on a realistic scenario and involve the student in relevant role-play, requiring the undertaking of a number of tasks, and in so doing provide a means for the development of a variety of personal, problem-solving, communication and other skills. The good lecturer soon realizes that for many situations the only answer is to produce original material (often based on published ideas) in order to meet all the requirements stated and also to ensure relevance to the student's immediate environment and prior knowledge. The result of all this may be that, while never giving up the search for good published material, and other inspiration, the lecturer's own source of assignment material will, in many cases, continue to be the students themselves, their own work-place (in the case of part-time students), and local industry and commerce. How better can we ensure the continued provision and acquisition of relevant knowledge and skills and the employability of our students?

David Ingham

David Ingham is dean of the faculty of business and community studies at Norwich City College of Further and Higher Education.

NEW FROM BUTTERWORTHS

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NOTICE BOARD

Events

The Royal Anthropological Institute and the Minority Rights Group have jointly organized a weekend residential conference at Cumberland Lodge, Windsor Great Park, to discuss "The protection of children: the proceedings will be concerned with three main sub-headings: child labour and work contribution; child abuse and neglect; and the care and protection of children. Anyone interested should contact the administration office, RA1, 56 Queen Anne Street, London W1M 9LA.

The sixth Hugh Greenwood lecture will be given in lecture theatre A of the Newman Building at the University of Exeter on February 14 at 5.15pm. The speaker will be Professor Kevin Connolly of the University of Sheffield, speaking on "The lost children: poverty and human development. Admission is free without ticket.

The annual conference of the Higher Education Group will be held in St Anne's College, Oxford, from Friday March 29 to Monday, April 1. The subject will be "Values in higher education: towards a common humanism?".

Honorary degrees

BUCKINGHAM
LL.D. Lord Scarman of Quait, D.Litt. Professor Peter Mathias, Chichester professor of economic history, University of Oxford and fellow of All Souls College, Oxford; Professor Charles Vereker, former professor of social and political theory and principal of the University College of Buckingham.
DUNELM: Mr Edgar Palamounian, chairman of council of the University of Buckingham, 1979-84.

EXETER
D.Litt. Sir Michael Hirst, actor; Lady Alison Fox, former senior lecturer in British archaeology at the University of Exeter.
LL.D. Sir Gordon Storr, advocate-general of the Court of Justice of the European Communities.
D.Sc. Sir John Gray, research professor at the laboratory of the Marine Biological Association of the United Kingdom at Plymouth; Sir Austin Peacock, chairman of British Aerospace; Dr Harry Kay, vice-chancellor of the University of Exeter, 1975-84.

GLASGOW
D.Litt. George Mackay Brown, Orkney poet and short story writer; James

Edward Meade, emeritus professor of political economy, University of Cambridge.

LL.D. Mohamed Ibrahim Dakroui, economist, chairman of MISR American international bank and member of Egyptian parliament; Angus McFaul, LL.D. Lord Grosart, managing director, Noble Grosart Ltd, merchant bankers; Graham Hills, principal and vice-chancellor of Strathclyde University; The Rev. Johnston Reid McKay, assessor of Glasgow University general council; Thomas Nelson Risk, governor of Bank of Scotland; James Sutherland, president of International Bar Association and senior partner, Messrs McClellan Naismith Anderson and Gardiner, Glasgow; David Watson, chairman and joint managing director, Scottish Metropolitan Property Company Ltd.
D.Sc. Fergus Campbell, professor of neurosensory physiology, University of Cambridge and fellow of St John's College; Thomas Stevens Stevens, emeritus professor of chemistry, University of Sheffield.

Awards

Professor W. Holmes of Wye College, University of London has been elected a correspondent foreigner of the French Academy of Agriculture.

Appointments

BUCKINGHAM
Lectureships: Mr C. H. Carr (business policy and accountancy); Dr P. Z. Tzaniotis (economics); Mrs J. E. Mercer (industrial relations and personnel management).

GLASGOW COLLEGE OF TECHNOLOGY
Lectureships: Dr Marcela Nedved (law).

SURREY
Lectureships: Mr N. N. Nevin (chemical and process engineering - temporary); Dr U. Tuzun (particle technology); Dr



One of the great forces in the "People's War" was undoubtedly the resurgence of British cinema to meet the tide of propaganda streaming from Hitler's Germany (and incidentally from the United States). "National Fictions" at the National Film Theatre, London, is a series which offers a perspective on the Second World War in British films and television. The series covers contemporary films like *Which Way We Serve*, *This Happy Breed*, through to later, often revisionist, accounts such as Ian McEwan's sour feminist essay *The India Game* and the highly popular *Tenko*. Illustrated above is a still from *Millions Like Us*, starring Patricia Roc and Eric Portman which starts the series. "National Fictions" runs the NFT till February 28.

N. F. Kirby (chemical and process engineering); Mr A. S. Vay (electronic engineering); Mr R. M. A. Peel (electronic engineering); Mrs P. F. Noall (nursing); Dr J. B. Morgan (nutrition and dietetics); Dr N. K. Howell (food science); Dr J. J. Gray (biochemistry - honorary); Dr S. C. Baylis (human biology and health - honorary); Mr R. F. Mott (mathematics - temporary);

Dr J. F. Huck (physics - honorary senior appointment); Dr P. F. Cryer (education studies - temporary part-time); Mrs P. M. Denko (educational studies - temporary part-time); Mr R. Omer (German and politics); Mr H. A. d'Arcy-Orga (music); Miss S. A. Jordan (chorographic studies/dance criticism - part-time); Dr P. Bach (Roberts Institute of Industrial and

Environmental Health and Safety Honorary and visiting appointments: Professor G. Salomons, medical and process engineering (biology); Professor E. Spence (biology); Professor J. M. Wainwright (biology); Professor J. A. M. Keesen (hotel, catering and tourism management); Professor L. H. Peach (physics and international studies);

slam); Professor M. M. Campbell and Dr W. Brown, £40,000 from SERC (4th year NMR spectrometer for synthetic models and structural studies in organic and inorganic chemistry); Dr J. N. Andrews, £1,925 for Natural Environmental Research Council (radio element and inert gas analysis); Dr E. Morgan and Dr C. J. Mago, £8,300 for SERC (police accountability and development of police/community liaison arrangements); Professor R. E. Klein and Ms P. A. B. (22,916 from Nuffield Provincial Hospitals Trust (public regulation of private health

Grants

BATH
Mr S. C. Edwards, £45,000 from DHSS (programme of energy monitoring at St Mary's Hospital, Isle of Wight); Mr A. D. M. Rayner, £36,235 from SERC (recognition systems development variation and evolutionary processes in holocene and neogene basaltic volcanism); Dr J. A. Pryke, £14,240 from SERC (open expression during plastic development in cap-

slam); Professor M. M. Campbell and Dr W. Brown, £40,000 from SERC (4th year NMR spectrometer for synthetic models and structural studies in organic and inorganic chemistry); Dr J. N. Andrews, £1,925 for Natural Environmental Research Council (radio element and inert gas analysis); Dr E. Morgan and Dr C. J. Mago, £8,300 for SERC (police accountability and development of police/community liaison arrangements); Professor R. E. Klein and Ms P. A. B. (22,916 from Nuffield Provincial Hospitals Trust (public regulation of private health

Chairs

Dr Catherine S. Peckham has been appointed first holder of the newly-established chair of paediatric epidemiology at the Institute of Child Health, University of London. Dr Peckham is presently reader in community medicine and head of the department of community medicine and general practice at Charing Cross Hospital Medical School.



Open University viewing

Saturday February 9

7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
7.28 Ethic, Mind and Community Relations. A question of colour (E334; prog 1)
8.00 Language in Use. The Power of speech (E262; prog 1)
8.02 Instrumentation. Introduction to instrumentation (T201; prog 1)
8.08 Research Methods. Interviewing technique (DE34; prog 1)
8.18 Modelling by Mathematics. Modelling and the modelling cycle (T1422; prog 1)
7.40 Science Foundation course. The Planet Earth: a scientific model (S101; prog 1)
8.08 Ecology. Introduction to Ecology (S322; prog 1)
8.30 Arts Foundation course. Why interdisciplinary studies? (A101; prog 1)
8.45 Education for Adults. The Quest for Knowledge (E335; prog 1)
9.00 Animal Physiology. The Plovers (S324; prog 1)
9.45 Statistics in Society. Physics of Data (M2542; prog 1)
10.10 Introduction to Chemistry. Symbols and Equations (A202; prog 1)
10.25 Management and the School. Priority School Management in action (S232; prog 1)
11.00 Polymer Engineering. Composite of life (S232; prog 1)
11.10 The Century England. Architecture & Society (A201; prog 1)
11.18 The Creative Manager. The Deep End (P670; prog 1)
11.40 Reading Development. Beginning Reading (P671; prog 1)
12.00 The Rise of Modernism in Music. Part 1: La Belle Epoque (A300; prog 1)
12.30 Modernism in Music. Part 2: La Belle Epoque (A300; prog 1)
12.45 Conflict and Stability in the Development of Modern Europe. Part 1: Imperialism (A300; prog 1)
12.50 Biology. The Age of cosmography (S334; prog 1)
RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Sunday February 10

6.30 Telecommunication Systems. Part 1 (T31; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
7.28 Ethic, Mind and Community Relations. A question of colour (E334; prog 1)
8.00 Language in Use. The Power of speech (E262; prog 1)
8.02 Instrumentation. Introduction to instrumentation (T201; prog 1)
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12.30 Modernism in Music. Part 2: La Belle Epoque (A300; prog 1)
12.45 Conflict and Stability in the Development of Modern Europe. Part 1: Imperialism (A300; prog 1)
12.50 Biology. The Age of cosmography (S334; prog 1)
RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Monday February 11

6.30 Modern Art and Modernism. Artists' techniques (A131; prog 3)
6.45 The Creative Manager. The Deep End (P670; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
7.28 Ethic, Mind and Community Relations. A question of colour (E334; prog 1)
8.00 Language in Use. The Power of speech (E262; prog 1)
8.02 Instrumentation. Introduction to instrumentation (T201; prog 1)
8.08 Research Methods. Interviewing technique (DE34; prog 1)
8.18 Modelling by Mathematics. Modelling and the modelling cycle (T1422; prog 1)
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12.30 Modernism in Music. Part 2: La Belle Epoque (A300; prog 1)
12.45 Conflict and Stability in the Development of Modern Europe. Part 1: Imperialism (A300; prog 1)
12.50 Biology. The Age of cosmography (S334; prog 1)
RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Tuesday February 12

6.30 Social Science foundation course. Whose account counts? (D102; prog 2)
6.45 The Creative Manager. The Deep End (P670; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
7.28 Ethic, Mind and Community Relations. A question of colour (E334; prog 1)
8.00 Language in Use. The Power of speech (E262; prog 1)
8.02 Instrumentation. Introduction to instrumentation (T201; prog 1)
8.08 Research Methods. Interviewing technique (DE34; prog 1)
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12.45 Conflict and Stability in the Development of Modern Europe. Part 1: Imperialism (A300; prog 1)
12.50 Biology. The Age of cosmography (S334; prog 1)
RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Wednesday February 13

6.30 Social Science foundation course. Whose account counts? (D102; prog 2)
6.45 The Creative Manager. The Deep End (P670; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
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9.00 Animal Physiology. The Plovers (S324; prog 1)
9.45 Statistics in Society. Physics of Data (M2542; prog 1)
10.10 Introduction to Chemistry. Symbols and Equations (A202; prog 1)
10.25 Management and the School. Priority School Management in action (S232; prog 1)
11.00 Polymer Engineering. Composite of life (S232; prog 1)
11.10 The Century England. Architecture & Society (A201; prog 1)
11.18 The Creative Manager. The Deep End (P670; prog 1)
11.40 Reading Development. Beginning Reading (P671; prog 1)
12.00 The Rise of Modernism in Music. Part 1: La Belle Epoque (A300; prog 1)
12.30 Modernism in Music. Part 2: La Belle Epoque (A300; prog 1)
12.45 Conflict and Stability in the Development of Modern Europe. Part 1: Imperialism (A300; prog 1)
12.50 Biology. The Age of cosmography (S334; prog 1)
RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Thursday February 14

6.30 Social Science foundation course. Whose account counts? (D102; prog 2)
6.45 The Creative Manager. The Deep End (P670; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
7.28 Ethic, Mind and Community Relations. A question of colour (E334; prog 1)
8.00 Language in Use. The Power of speech (E262; prog 1)
8.02 Instrumentation. Introduction to instrumentation (T201; prog 1)
8.08 Research Methods. Interviewing technique (DE34; prog 1)
8.18 Modelling by Mathematics. Modelling and the modelling cycle (T1422; prog 1)
7.40 Science Foundation course. The Planet Earth: a scientific model (S101; prog 1)
8.08 Ecology. Introduction to Ecology (S322; prog 1)
8.30 Arts Foundation course. Why interdisciplinary studies? (A101; prog 1)
8.45 Education for Adults. The Quest for Knowledge (E335; prog 1)
9.00 Animal Physiology. The Plovers (S324; prog 1)
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RADIO 4
6.30 Biology. The Age of cosmography. Introduction to the course (S334; prog 1)

Friday February 15

6.30 Social Science foundation course. Whose account counts? (D102; prog 2)
6.45 The Creative Manager. The Deep End (P670; prog 1)
7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
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Saturday February 16

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7.10 Photomicroscopy. Introduction to photomicroscopy (S341; prog 1)
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Sunday February 17

6.30 Social Science foundation course. Whose account counts? (D102; prog 2)
6.45 The Creative Manager. The Deep End (P670; prog 1)
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Universities



The University of Sydney
LECTURER-DEPARTMENT OF LINGUISTICS
Reference No. 3/17
The position is that of Lecturer in Applied Linguistics, with specialisation in the Teaching of English to Speakers of Other Languages. This is a culture position funded by the Australian Development Assistance Bureau, to enable the Department to offer a specialist TESOL strand in the M.A./M.Ed. in Applied Linguistics. Starting date is 1st June 1985 (beginning of second term). Applicants should possess a Master's degree in Applied Linguistics and have experience of TESOL teaching and research. Special expertise in psycholinguistics, testing and English for Specific Purposes is desirable. This is a fixed term appointment to 31st December 1985.
The University reserves the right not to proceed with an appointment for financial or other reasons.
1st March 1985.

La Trobe University Melbourne
LECTURER/SENIOR LECTURER IN PREHISTORY (TENURABLE)
School of Humanities
Applications are invited from qualified persons for a Lectureship in Prehistory in the School of Humanities. The successful candidate will be expected to teach and supervise research in the field of prehistory, and to contribute to the development of the School's prehistory programme. The position is tenurable and offers a high level of responsibility. The successful candidate will be expected to have a high degree of research achievement in the field of prehistory, and to have a strong commitment to teaching and supervision of research students. The position is tenurable and offers a high level of responsibility. The successful candidate will be expected to have a high degree of research achievement in the field of prehistory, and to have a strong commitment to teaching and supervision of research students.
15th March 1985.

The University of Melbourne
LECTURER IN AGRICULTURAL ENGINEERING (CONTINUING)
Department of Civil and Agricultural Engineering
Applications are invited from qualified persons for a Lectureship in Agricultural Engineering in the Department of Civil and Agricultural Engineering. The successful candidate will be expected to teach and supervise research in the field of agricultural engineering, and to contribute to the development of the Department's agricultural engineering programme. The position is tenurable and offers a high level of responsibility. The successful candidate will be expected to have a high degree of research achievement in the field of agricultural engineering, and to have a strong commitment to teaching and supervision of research students.
15th March 1985.

UNIST
Chair in Textile Technology
Applications are invited for the post of Professor and Head of the Department of Textiles to succeed Professor J. W. S. Hearle who retires in September 1985. The successful candidate should have an established reputation in research or development in any textile related area of science, engineering or technology. The person appointed will be expected to provide academic leadership in research and teaching and to foster the Department's contacts with industry and commerce. An ability to coordinate and integrate the activities of the Department which include design, technology, economics and management will be essential. Salary will be in the Professional range with a minimum of £18,070 per annum. Requests for application forms and further particulars, quoting reference TR102, should be addressed to the Registrar, Room 80, UNIST, PO Box 88, Manchester M13 9PL. Informal enquiries can be made of the Registrar, Professor J. W. S. Hearle.
Completed application forms should be returned by 1 March 1985. (02061)

CONFERENCE ON MODERN BIOGRAPHY

12-14 APRIL 1985
Speakers include Robert Black, Victoria Glendinning, Robert Siodmak and Michael Holroyd
Write for details to Dr Philippe Levine, School of English, University of East Anglia, Norwich NR4 7TJ

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CLASSIFIED ADVERTISEMENTS

The Times Higher Education Supplement

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Universities continued

UNIVERSITY OF ZIMBABWE

Applications are invited for the following positions:

CHAIR IN BIOCHEMISTRY

The Department of Biochemistry seeks applications for the Chair from biochemists with a good academic and/or industrial research record. A knowledge of African biochemistry would be desirable. The Department has an academic staff of eleven, and there has been a strong emphasis on research as well as teaching, since its establishment in 1980. The staff teach science, medicine, veterinary and food science students, as well as supervising postgraduate students.

LECTURESHIPS/SENIOR LECTURESHIPS/ASSOCIATE PROFESSORSHIPS

In the following Departments:

DEPARTMENT OF LAW (2 posts)

Post A: As from June 1985, the Department requires an experienced teacher who is a specialist in the field of Property Law, including Law relating to Planning and Land Use. It is also desirable that the candidate has an interest in Jurisprudence with a specific capacity regarding Marxist perspectives on Legal Theory. A proven ability and some experience in editorial work with legal materials would be an advantage. In addition, experience in teaching and supervising postgraduate students is desirable. The Department also requires specialists in the field of Contract Law and the Law of Contract, preferably with specific experience in a Roman Dutch legal system.

Post B: The Department of Law wishes to fill a teaching post in the LL.B. degree course. Applicants should be Legal Practitioners and have had practical legal experience in Zimbabwe. The post will involve both teaching practical subjects on the LL.B. course and the operation of the Legal Aid Clinic.

DEPARTMENT OF GEOGRAPHY

Applicants should have a postgraduate degree, preferably a PhD, and have specialised in geomorphology. The successful candidate should be able to teach a variety of physical geography topics at undergraduate level and be prepared to supervise postgraduate students. Knowledge of basic field and laboratory techniques, statistical methods and computing, and an interest in tropical environments would be an advantage. There are excellent opportunities for both pure and applied geomorphological research in Zimbabwe and the Department possesses vehicles and well-equipped physical and air photo laboratories to back up such research.

Salary scales:

Lecturer:	251,580-320,076
Senior Lecturer:	280,580-323,400
Associate Professor:	321,080-323,904
Professor:	328,204-335,184

Appointment on the above scales according to qualifications and experience.

Conditions of Service: Both permanent and short-term contracts are offered. Persons who are not Zimbabwean citizens may be appointed only on a short-term basis, with an initial period of two years. Short-term contracts may, in exceptional cases, be extended.

Six copies of applications, giving full personal particulars (including full names, place and date of birth, etc.), qualifications, employment and experience, present salary, date of availability, telephone number and names and addresses of three referees, should be addressed to the Director, Appointments and Personnel, University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe (tel: 04-153 274). Candidates in the UK should send an additional copy of their applications to the Secretary General, Association of Commonwealth Universities (ACU), 36 Gordon Square, London WC1H 0PF.

Closing date for receipt of applications is 15 March 1985.

(252019)

UNIVERSITY OF BATH

SCHOOL OF EDUCATION

BP LECTURESHIP IN

EDUCATION AND INDUSTRY

The person appointed will be expected to take part fully in the work of the School and in particular to develop links with industry in the context of initial and in-service teacher education, and to participate in and develop research projects and curriculum initiatives in this area.

Applicants should possess good academic qualifications as well as appropriate educational and industrial experience.

Salary range £7,620 to £14,925 per annum. Further particulars and application forms obtainable from the Personnel Officer, University of Bath, Bath BA2 7AY, quoting reference 86/18.

Closing date: 4th March 1985.

UNIVERSITY OF BATH

SCHOOL OF EDUCATION

BP LECTURESHIP IN

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Universities continued

University of Leicester
Department of History
TEMPORARY
LECTURESHIP
IN MODERN
EUROPEAN HISTORY

Applications are invited for a Temporary Lectureship in Modern European History, to be held from October 1985 to September 1987. Candidates will be expected to be responsible for courses in European History in the period post 1750.

Initial salary according to qualifications and experience of the scale £7,530 to £14,925.

Further particulars from the Registrar, University of Leicester, University Road, Leicester LE1 7RH, to whom applications should be sent by 5 March 1985. The form provided should be completed and sent to the Registrar. Enquiries are welcome and should be directed to Dr. Newman, Head of Department of History, (55266) H1

Royal Holloway and Bedford Colleges
University of London
LECTURESHIP
IN SEMICONDUCTOR
PHYSICS

from 1st September 1985. This is a new post supported by SERC. Preference will be given to applicants with postgraduate experience in experimental physics relevant to measurements on semiconductor materials at low temperatures in high magnetic fields.

Salary £8,753 - £15,158 a year including London allowance.

Please send a stamped addressed envelope for further details to Mrs D.J. Ode, Royal Holloway and Bedford College, Egham, Surrey TW20 0EX, to whom applications (two copies) with the names and addresses of two referees should be sent. Closing date 28th February 1985. (55266) H1

Fellowships

Oxford University Department of Engineering Science and Somerville College

GENERAL ELECTRIC COMPANY (GEC) RESEARCH FELLOWSHIP/LECTURESHIP IN ELECTRICAL ENGINEERING

Applications are invited for the GEC Research Fellowship/Lectureship, funded by GEC, to be held in the Department of Engineering Science and in association with Somerville College. The successful applicant will have had at least three years' research experience, will be based in the Department and will be expected to select a research topic which can be associated with existing work in the field of acousto-electronics, opto-electronics, control or electric plasmas.

The Fellow/Lecturer will also be required to teach up to a maximum of five hours a week during term for the College. If the successful candidate is a woman, she will become a Research Fellow of Somerville College; if a man, a Research Lecturer.

The appointment will be for a period of three years with effect from 1 October 1985 or earlier. Salary and associated allowances will be in the range of £14,000-£16,000, with full board and lodging in College, or full board and full accommodation allowance.

Applications, including CV and the names of three referees, should be forwarded to Prof. E.G.S. Paige, Department of Engineering Science, Parks Road, Oxford OX1 3PA, from whom further particulars can be obtained. Closing date for applications: 22 February 1985. References should be sent direct, to arrive not later than 22 February. (020636)

Oxford
Lincoln College
SHUFFREY
RESEARCH
FELLOWSHIP

The College invites applications from graduates, either men or women, for a Shuffrey Research Fellowship in the History of (1) Architecture or (2) Design or (3) Fine Arts, to be held from 1 October 1985 for five years.

Applications should be sent to the Registrar, Lincoln College, 100 High Street, Oxford OX1 3BA, to whom applications should be submitted by 5 March 1985. (55265) H1

Balliol College
Oxford OX1 3BJ
In conjunction with
The Royal SocietyJULIAN HUXLEY
JUNIOR RESEARCH
FELLOWSHIP

The College in conjunction with the Royal Society is offering a Julian Huxley Junior Research Fellowship in Biology, to be held from 1 October 1985 to 31 March 1986.

Further details from Balliol College, Oxford OX1 3BJ, to whom applications should be sent by 5 March 1985. (55265) H1

Personal

IMMEDIATE ADVANCES 1000
The College in conjunction with the Royal Society is offering a Julian Huxley Junior Research Fellowship in Biology, to be held from 1 October 1985 to 31 March 1986.

University of
Strathclyde

Department of Thermodynamics and Heat and Department of Mathematics

POSTDOCTORAL
RESEARCH
FELLOWSHIP

Applications are invited for a 3 year Postdoctoral Research Fellowship, funded by the SERC, to be held in the Department of Thermodynamics and Heat or in the Department of Mathematics, to be held from 1 October 1985 for five years.

Applications should be sent to the Registrar, University of Strathclyde, James Watt Building, Riddrie Street, Glasgow G4 0NU, to whom applications should be submitted by 5 March 1985. (55265) H1

Oxford
Lincoln College
MONTGOMERY
TUTORIAL
FELLOWSHIP IN
GERMAN STUDIES

The College invites applications from graduates, either men or women, for a Montgomery Tutorial Fellowship in German Studies, to be held from 1 October 1985 for five years.

Applications should be sent to the Registrar, Lincoln College, 100 High Street, Oxford OX1 3BA, to whom applications should be submitted by 5 March 1985. (55265) H1

Personal

IMMEDIATE ADVANCES 1000
The College in conjunction with the Royal Society is offering a Julian Huxley Junior Research Fellowship in Biology, to be held from 1 October 1985 to 31 March 1986.

Polytechnics

SUNDERLAND POLYTECHNIC
Faculty of Education

Applications are invited for the following posts:
Salary scales: L11 £7,548-£11,175 BAR £12,099
SL £11,175-£13,128 BAR £14,061

Department of Teaching Studies
SENIOR LECTURER
In Education

(Children with Special Needs in Mainstream and Special Schools)
The post will take effect from 1st May 1985, or as soon as possible thereafter and will involve work both in-service and with pre-service courses of teacher education.

Applicants should have experience of both severely handicapped children and pupils in normal primary schools. An interest in, and some experience of, research in the field of Special Needs will be an advantage.

Department of PE & Creative Studies.
SENIOR LECTURER
In Dance in Education

Effective from 1st May 1985, or as soon as possible thereafter the main teaching will be on the B.Ed (Hons) degree for Primary schools.

The successful applicant must be well qualified in Dance and have experience of teaching in the Primary School.

Applicants should identify a further teaching area in the creative arts in physical education. The Faculty of Education has a sound research base and the person appointed would be invited to join the Creative Arts or Sports Studies research group.

LII/SL
In Sport Studies/Physical Education

Effective from 1st September 1985, the person appointed to this post will be required to contribute mainly to the teaching of the Psychology of Sport, on a B.A. (Hons) Sport Studies degree run jointly by Sunderland and Newcastle Polytechnics and a B.Ed. (Hons) degree for Primary schools.

Applicants should identify a main practical sport area in which they can teach at Honours degree level. Experience of teaching in a Primary school will be an advantage.

The Department has established a sport research unit and the person appointed would be invited to become involved on an individual or group basis.

An application form and further particulars for the above posts may be obtained from the Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland SR2 7EE or tel (0783) 76231, Ext. 11.
Closing date: 22nd February, 1985. (02063)

DUNDEE COLLEGE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND
ELECTRONIC ENGINEERING

Senior Lectureship in Digital Systems

Applicants should possess a good Honours Degree in Electrical and/or Electronic Engineering or a related discipline, and preferably a higher degree, together with relevant industrial and/or research experience.

The person appointed will be required to teach on a range of first degree and other courses. He/she will also be expected to lead the development of the subject of digital systems at both undergraduate and postgraduate levels, which is likely to include the development of design and software relating to computer-aided engineering.

Salary scales (currently under review):
SENIOR LECTURESHIP: £12,777-£14,184 (BAR) £16,104, with initial placing depending upon approved previous experience.

LECTURESHIP: £8,888 - £12,777 (BAR) - £13,716, with initial placing depending upon approved previous experience.

Financial assistance towards the cost of removal expenses may be payable.

Further particulars and application forms may be obtained from the Personnel Officer, Dundee College of Technology, Bell Street, Dundee DD1 1HG, to whom applications should be lodged not later than 28th February 1985. (02062)

DEPARTMENT OF MATHEMATICS, STATISTICS & COMPUTING
READER IN COMPUTER STUDIES
POST RCS/M

Applications are invited for a Reader in Computer Studies, to be held from 1 October 1985 for five years.

Salary scale £13,000 - £19,407 (Closing date: 1st March 1985)
For further details and application forms contact the Faculty Office, Dundee College of Technology, Bell Street, Dundee DD1 1HG. (02062)

oxford Gipsy Lane, Headington, Oxford, OX3 0BP
polytechnic Oxford 64777

PROFESSOR AND
HEAD OF DEPARTMENTOF ELECTRICAL ELECTRONIC
AND CONTROL ENGINEERING

Salary: Grade VI £17,397-£19,170 per annum

Applications are invited for appointment to the above post. The Department is to the forefront in Development in Information Technology, and receives substantial funding from Industry, Government Departments, the Manpower Services Commission, European Economic Community, and the Science and Engineering Research Council.

Applicants should have high academic qualifications, appropriate industrial or professional experience, and hold a recognised professional qualification. A successful record in securing external funding would be an advantage.

The Polytechnic will especially welcome applications from persons in industry who wish to continue and extend collaboration with industry.

An application form and further particulars may be obtained from the Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland SR2 7EE or telephone (0783) 76231, Ext. 11.
Closing date: 21st February 1985. (02061)

SUNDERLAND
POLYTECHNICKINGSTON POLYTECHNIC
FACULTY OF SCIENCESchool of Geography
LECTURER II in
GEOGRAPHY

Applications are invited from human geographers preferably with a primary interest in Regional Planning. The successful candidate, who should have an Honours degree in Geography, will have a sound knowledge of quantitative methods in human geography and should have experience in Urban Social Geography or in Regional Planning.

Salary grade Lecturer II £8,226-£12,777 including London allowance.

School of Analytical and Biological Chemistry
LECTURER II in
LIFE SCIENCES

Candidates should have a proven record of research in the area of biochemistry, biology or microbiology. Experience of a range of analytical techniques would be an advantage. The person appointed will be expected to teach aspects of Life Sciences at both undergraduate and postgraduate levels, and to be involved in research in the area of study and contribute to the development of courses in Life Sciences at Kingston.

Salary grade Lecturer II £8,226-£12,777 including London allowance.

School of Applied Physics
CEGB LECTURESHIP IN
APPLIED PHYSICS

Applicants should have worked in an area of physical applications, eg. in applied physics, environmental measurement, development of instrumentation, which would be of value to research. The person appointed will be required to contribute to the teaching of the School up to degree level. He/she will also be a recognised member of the appropriate research team at the CEGB Research Laboratories, Culham, Oxford, or in a comparable range of equipment and instrumentation, and will be expected to carry out research both at CEGB and at the Polytechnic.

Salary grade Lecturer II/£8,226-£12,777 including London allowance. Further details and application forms (to be returned by 8th March) from Personnel Officer, Kingston Polytechnic, Penryn Road, Kingston upon Thames TW20 0EX, Tel 01-899 1866 ext 267. (02065)

DEPUTY HEAD
OF PERSONNEL
SERVICES

£11,916 - £12,900pa Inc

Deputing for the Head of Personnel Services in all areas, and specifically responsible for non-teaching staff development this post calls for a mature professional who is at once a creative team-leader and a resource management services person.

A record of achievement in the personnel function of a large organisation, good status, PM membership, and evidence of substantial post-experience study, are expected. Much of the work is confidential, demanding a high degree of integrity, and not negotiable.

Write enclosing a.e. (min 10 x 4in) and quoting ref J102 for further details and an application form Personnel Office, Middlesex Polytechnic, 114 Chase Side, London W14 8PL. Closing date February 18.

Middlesex Polytechnic

Assistant Director
Resource Management & Planning
£25,026 pa inc (under review)

The successful applicant will share the general management of the Polytechnic with fellow members of the Directorate, but will have particular responsibilities in respect of resource management and planning.

The appointee will preferably be a graduate and a qualified accountant, with management experience in higher education.

Further information: Head of Personnel Services, (Ref A667C), Middlesex Polytechnic, 114 Chase Side, London W14 8PL. Closing date: 1 March 1985. (02063)

Polytechnics continued

Brighton
Polytechnic
Department of Business Management
SENIOR LECTURER/LECTURER II
In International Marketing

Salary: Senior Lecturer - £11,175-£14,061
Lecturer II - £7,548-£12,099

This is a key post in the development within the department, that includes an MBA and a joint degree with Turin Polytechnic. Applicants should have a good honours degree and either a postgraduate qualification and a significant publication/research record or experience in marketing both at home and abroad at senior level.

Application forms and further details from the Personnel Department, Brighton Polytechnic, Moulescoomb, Brighton BN2 4AT, Telephone (0273) 893658
Extension 2837. Closing date: 26th February. (02068)

Brighton
Polytechnic
FACULTY OF ART AND DESIGN
Department of Fashion and TextilesHead of Department
£16,098 - £17,877

The vacancy arises through the appointment of the present Head, John Miles, to the post of Design Director of Home Furnishings at Courtlaids.

Further details and application forms from the Personnel Department, Brighton Polytechnic, Moulescoomb, Brighton BN2 4AT, Telephone: (0273) 893655, ext 2480. Closing date 1 March 1985. (02064)

Department of Sociology
LECTURER II
IN SOCIOLOGY

The Department of Sociology seeks to appoint a Lecturer in Sociology to take substantial responsibility for teaching within the area of sociology research at introductory and advanced levels in the undergraduate courses. The successful candidate should be able to work across the range of the sociological methodology of the social sciences to particularise the teaching of sociology to particular methods and techniques. Quantitative methods, survey methods, historical methods and fieldwork with computer applications is a requirement. Candidates should have experience in empirical research, preferably in applied areas relevant to the professional studies interests of the Department.

Applicants are asked to make clear their areas of particular interest and expertise.

The post is available from 1st September 1985.

Salary scales: £8,226 to £13,137 Inc. London Weighting Allowance.

For further details and application form please contact the Polytechnic Personnel Office, Aisle House, 169 Old High Road, Chichester, West Sussex PO19 1SE. Telephone: (01243) 81111. Closing date for receipt of applications: February 20th. (02061)

NELP

Postal No. 2113412

Lancashire Polytechnic
Preston
School of EconomicsLECTURER II/
SENIOR LECTURER
IN BUSINESS
ECONOMICS

Applicants should have an interest in, and experience of, the activities of business organisations. This experience should have been gained through employment in such organisations, consultancy or research. The successful applicant will be expected to contribute to the teaching of the B.A. Business Studies Degree.

Salary scales: Lecturer II £7,548-£12,099; Senior Lecturer £11,175-£14,061 (BAR) £12,099-£13,128 (BAR) £14,061-£15,158 (BAR) £15,158-£16,104 (BAR) £16,104-£17,191 (BAR) £17,191-£18,288 (BAR) £18,288-£19,385 (BAR) £19,385-£20,482 (BAR) £20,482-£21,579 (BAR) £21,579-£22,676 (BAR) £22,676-£23,773 (BAR) £23,773-£24,870 (BAR) £24,870-£25,967 (BAR) £25,967-£27,064 (BAR) £27,064-£28,161 (BAR) £28,161-£29,258 (BAR) £29,258-£30,355 (BAR) £30,355-£31,452 (BAR) £31,452-£32,549 (BAR) £32,549-£33,646 (BAR) £33,646-£34,743 (BAR) £34,743-£35,840 (BAR) £35,840-£36,937 (BAR) £36,937-£38,034 (BAR) £38,034-£39,131 (BAR) £39,131-£40,228 (BAR) £40,228-£41,325 (BAR) £41,325-£42,422 (BAR) £42,422-£43,519 (BAR) £43,519-£44,616 (BAR) £44,616-£45,713 (BAR) £45,713-£46,810 (BAR) £46,810-£47,907 (BAR) £47,907-£49,004 (BAR) £49,004-£50,101 (BAR) £50,101-£51,198 (BAR) £51,198-£52,295 (BAR) £52,295-£53,392 (BAR) £53,392-£54,489 (BAR) £54,489-£55,586 (BAR) £55,586-£56,683 (BAR) £56,683-£57,780 (BAR) £57,780-£58,877 (BAR) £58,877-£59,974 (BAR) £59,974-£61,071 (BAR) £61,071-£62,168 (BAR) £62,168-£63,265 (BAR) £63,265-£64,362 (BAR) £64,362-£65,459 (BAR) £65,459-£66,556 (BAR) £66,556-£67,653 (BAR) £67,653-£68,750 (BAR) £68,750-£69,847 (BAR) £69,847-£70,944 (BAR) £70,944-£72,041 (BAR) £72,041-£73,138 (BAR) £73,138-£74,235 (BAR) £74,235-£75,332 (BAR) £75,332-£76,429 (BAR) £76,429-£77,526 (BAR) £77,526-£78,623 (BAR) £78,623-£79,720 (BAR) £79,720-£80,817 (BAR) £80,817-£81,914 (BAR) £81,914-£83,011 (BAR) £83,011-£84,108 (BAR) £84,108-£85,205 (BAR) £85,205-£86,302 (BAR) £86,302-£87,399 (BAR) £87,399-£88,496 (BAR) £88,496-£89,593 (BAR) £89,593-£90,690 (BAR) £90,690-£91,787 (BAR) £91,787-£92,884 (BAR) £92,884-£93,981 (BAR) £93,981-£95,078 (BAR) £95,078-£96,175 (BAR) £96,175-£97,272 (BAR) £97,272-£98,369 (BAR) £98,369-£99,466 (BAR) £99,466-£100,563 (BAR) £100,563-£101,660 (BAR) £101,660-£102,757 (BAR) £102,757-£103,854 (BAR) £103,854-£104,951 (BAR) £104,951-£106,048 (BAR) £106,048-£107,145 (BAR) £107,145-£108,242 (BAR) £108,242-£109,339 (BAR) £109,339-£110,436 (BAR) £110,436-£111,533 (BAR) £111,533-£112,630 (BAR) £112,630-£113,727 (BAR) £113,727-£114,824 (BAR) £114,824-£115,921 (BAR) £115,921-£117,018 (BAR) £117,018-£118,115 (BAR) £118,115-£119,212 (BAR) £119,212-£120,309 (BAR) £120,309-£121,406 (BAR) £121,406-£122,503 (BAR) £122,503-£123,600 (BAR) £123,600-£124,697 (BAR) £124,697-£125,794 (BAR) £125,794-£126,891 (BAR) £126,891-£127,988 (BAR) £127,988-£129,085 (BAR) £129,085-£130,182 (BAR) £130,182-£131,279 (BAR) £131,279-£132,376 (BAR) £132,376-£133,473 (BAR) £133,473-£134,570 (BAR) £134,570-£135,667 (BAR) £135,667-£136,764 (BAR) £136,764-£137,861 (BAR) £137,861-£138,958 (BAR) £138,958-£140,055 (BAR) £140,055-£141,152 (BAR) £141,152-£142,249 (BAR) £142,249-£143,346 (BAR) £143,346-£144,443 (BAR) £144,443-£145,540 (BAR) £145,540-£146,637 (BAR) £146,637-£147,734 (BAR) £147,734-£148,831 (BAR) £148,831-£149,928 (BAR) £149,928-£151,025 (BAR) £151,025-£152,122 (BAR) £152,122-£153,219 (BAR) £153,219-£154,316 (BAR) £154,316-£155,413 (BAR) £155,413-£156,510 (BAR) £156,510-£157,607 (BAR) £157,607-£158,704 (BAR) £158,704-£159,801 (BAR) £159,801-£160,898 (BAR) £160,898-£161,995 (BAR) £161,995-£163,092 (BAR) £163,092-£164,189 (BAR) £164,189-£165,286 (BAR) £165,286-£166,383 (BAR) £166,383-£167,480 (BAR) £167,480-£168,577 (BAR) £168,577-£169,674 (BAR) £169,674-£170,771 (BAR) £170,771-£171,868 (BAR) £171,868-£172,965 (BAR) £172,965-£174,062 (BAR) £174,062-£175,159 (BAR) £175,159-£176,256 (BAR) £176,256-£177,353 (BAR) £177,353-£178,450 (BAR) £178,450-£179,547 (BAR) £179,547-£180,644 (BAR) £180,644-£181,741 (BAR) £181,741-£182,838 (BAR) £182,838-£183,935 (BAR) £183,935-£185,032 (BAR) £185,032-£186,129 (BAR) £186,129-£187,226 (BAR) £187,226-£188,323 (BAR) £188,323-£189,420 (BAR) £189,420-£190,517 (BAR) £190,517-£191,614 (BAR) £191,614-£192,711 (BAR) £192,711-£193,808 (BAR) £193,808-£194,905 (BAR) £194,905-£196,002 (BAR) £196,002-£197,099 (BAR) £197,099-£198,196 (BAR) £198,196-£199,293 (BAR) £199,293-£200,390 (BAR) £200,390-£201,487 (BAR) £201,487-£202,584 (BAR) £202,584-£203,681 (BAR) £203,681-£204,778 (BAR) £204,778-£205,875 (BAR) £205,875-£206,972 (BAR) £206,972-£208,069 (BAR) £208,069-£209,166 (BAR) £209,166-£210,263 (BAR) £210,263-£211,360 (BAR) £211,360-£212,457 (BAR) £212,457-£213,554 (BAR) £213,554-£214,651 (BAR) £214,651-£215,748 (BAR) £215,748-£216,845 (BAR) £216,845-£217,942 (BAR) £217,942-£219,039 (BAR) £219,039-£220,136 (BAR) £220,136-£221,233 (BAR) £221,233-£222,330 (BAR) £222,330-£223,427 (BAR) £223,427-£224,524 (BAR) £224,524-£225,621 (BAR) £225,621-£226,718 (BAR) £226,718-£227,815 (BAR) £227,815-£228,912 (BAR) £228,912-£230,009 (BAR) £230,009-£231,106 (BAR) £231,106-£232,203 (BAR) £232,203-£233,300 (BAR) £233,300-£234,397 (BAR) £234,397-£235,494 (BAR) £235,494-£236,591 (BAR) £236,591-£237,688 (BAR) £237,688-£238,785 (BAR) £238,785-£239,882 (BAR) £239,882-£240,979 (BAR) £240,979-£242,076 (BAR) £242,076-£243,173 (BAR) £243,173-£244,270 (BAR) £244,270-£245,367 (BAR) £245,367-£246,464 (BAR) £246,464-£247,561 (BAR) £247,561-£248,658 (BAR) £248,658-£249,755 (BAR) £249,755-£250,852 (BAR) £250,852-£251,949 (BAR) £251,949-£253,046 (BAR) £253,046-£254,143 (BAR) £254,143-£255,240 (BAR) £255,240-£256,337 (BAR) £256,337-£257,434 (BAR) £257,434-£258,531 (BAR) £258,531-£259,628 (BAR) £259,628-£260,725 (BAR) £260,725-£261,822 (BAR) £261,822-£262,919 (

Research and Studentships continued

The Child Care (UK) Department of The Save the Children Fund seeks to fill the following HQ based research posts reporting to the department's Research and Policy Adviser:

Research Officer

Duties will include assisting the Research & Policy Adviser in the undertaking and administration of research studies; the preparation of policy papers; the advising of project staff on monitoring and evaluation; and the analysis of primary and secondary data.

Applicants should have good academic qualifications and applied research experience, relevant to children, in one of the social sciences or a related discipline. (S) He should possess proven communication skills and experience of data processing and statistical analysis is also required. The post will involve some travel in the UK.

Starting salary will be around £10,000 per annum.

Research Worker (Temporary)

We require a Research Worker for six months to carry out an evaluation of SCF programmes for children in hospital. The evaluation is likely to involve analysing archive material, visiting hospital play schemes and carrying out a postal survey and interviews.

Applicants should have good academic qualifications in one of the social sciences and some research experience. The ability to write for a wide audience and meet a tight deadline is essential.

Salary will be around £8,500 per annum.

For further details and application forms please contact Leonie London, Personnel Officer, SCF, Mary Datchelor House, 17 Grove Lane, Camberwell, London SE5 8PD (Tel: 01-703 5400). Closing date for applications is: 25th February, 1985.

(020655)

Save the Children

The University of Leeds

School of Education

Bradford TVE Project: Local

Applications are invited for the post of

RESEARCH FELLOW

to work on the evaluation of the Manpower and Vocational Education Initiative in Bradford.

Candidates are expected to have relevant research experience in the field of vocational education.

The post is available from 1 April 1985 and will be a fixed term ending not later than 31 August 1985.

Internal inquiries may be directed to Dr G.S. Whalley at the School of Education (0532 451751).

Salary within the range £7,250 - £12,150 according to age, qualifications and experience.

Application forms and further particulars may be obtained from the Registrar, The University of Leeds, 153 157, Guyana Road, Leeds LS2 9JT. Closing date for applications: 26 February 1985, 1300 hours.

HT

University of Newcastle upon Tyne

Department of Marine Engineering

SERC/CASE STUDENTSHIP

Combustion of Emulsified Fuels in Diesel Engines

Applications are invited for a SERC/CASE studentship to work with Mr. J. G. Taylor on the project 'Combustion of Emulsified Fuels in Diesel Engines'.

The project is concerned with the development of a new type of diesel engine which will be able to operate on a mixture of oil and water.

Applicants should have a first class honours degree in Mechanical Engineering or a related discipline.

Enquiries of a full CV and letter of application to: Mr. J. G. Taylor, Department of Marine Engineering, University of Newcastle upon Tyne, NE1 7RU.

Closing date: 15 March 1985.

HT

Holidays and Accommodation

PRISCILLA HOUSE HOTEL, 105, PRINCE OF WALES ROAD, LONDON, W1P 0JH. Tel: 01-493 1122.

U.S. PROF. Mrs. J. H. HARRIS, 4, CHURCH LANE, LONDON, N1 1JH. Tel: 01-533 1122.

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UNIVERSITY OF WALES

DEPARTMENT OF APPLIED CHEMISTRY

STUDENTSIPS

for postgraduate research leading to PhD degrees in analytical chemistry, bio-organic chemistry, electrochemical and bio-sensors, medicinal chemistry, organic photochemistry, organic synthesis, polymer science, polymer technology and synthesis of natural products.

The available studentships include an SERC CASE award, supervised by Dr. J. D. R. Thomas and G. J. Moody in collaboration with ICI Chemicals plc, for a project on 'Electrochemical Approaches to Hydrogen Peroxide Monitoring'.

Applicants should possess first or upper second class honours degree and be of British or EEC nationality. Applications will be considered from those sitting their degree examinations in 1985.

Application forms may be obtained from Academic Registry (Postgraduate Studies), UWIST, PO Box 68, Cardiff CF1 3XA.

(020814)

University of Essex

Department of Computer Science

RESEARCH OFFICER

Applications are invited for the post of Research Officer for the Victor Project. Project Horizon, for appointment as soon as possible for a period of 3 years.

(Salary in the range £7,500 - £7,980 per annum).

Experience in educational psychology and the teaching of the mentally handicapped is required. Familiarity with the use of computers would be an advantage, but is not essential. Duties will be to construct and implement computer-based teaching curricula for the severely mentally handicapped.

Applications (3 copies) including a curriculum vitae and the names and addresses of 2 referees should be sent to: Dr. J. D. R. Thomas, Department of Computer Science, University of Essex, Wivenhoe Park, Colchester, CO4 3SQ. From whom further particulars may be obtained by March 1985. (020611) HT

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(Salary in the range £7,500 - £7,980 per annum).

Experience in educational psychology and the teaching of the mentally handicapped is required. Familiarity with the use of computers would be an advantage, but is not essential. Duties will be to construct and implement computer-based teaching curricula for the severely mentally handicapped.

Applications (3 copies) including a curriculum vitae and the names and addresses of 2 referees should be sent to: Dr. J. D. R. Thomas, Department of Computer Science, University of Essex, Wivenhoe Park, Colchester, CO4 3SQ. From whom further particulars may be obtained by March 1985. (020611) HT

University of Essex

Department of Computer Science

RESEARCH OFFICER

Applications are invited for the post of Research Officer for the Victor Project. Project Horizon, for appointment as soon as possible for a period of 3 years.

Aberystwyth The University College of Wales

POST-DOCTORAL RESEARCH ASSISTANT

Applications are invited for the above post to work with Dr. J. D. R. Thomas on the project 'Electrochemical Approaches to Hydrogen Peroxide Monitoring'.

The salary on commencement will be up to point 2, £7,980, on Range 1A.

Informal enquiries to Dr. J. D. R. Thomas (Tel: 0970 3111, Ext. 5428/5429).

Application forms and further particulars are available from the Staffing Officer, Department of Chemistry, University of Wales, Aberystwyth, Ceredigion, Wales, SY23 3DA. Tel: 0970 3111, Ext. 5428/5429. Closing date for applications: Friday, 15 March 1985. (020611) HT

University of Newcastle upon Tyne

Department of Industrial Management

RESEARCH ASSOCIATE

A computing specialist, or social scientist with computing expertise is required to work as a temporary Research Associate for one year.

Very large computer data files are being used to study the life-cycle of businesses, and of particular interest, the job generation aspect of this. The work will involve a considerable amount of computing. Applicants should be graduates, and relevant business or research experience would be an advantage. It may be possible for a suitably qualified candidate to register for a higher degree.

The initial salary will be up to £8,920 per annum on the Scale £13,388 - £19,150, according to age, qualifications and experience.

Applications, with the names and addresses of three referees, should be sent, as soon as possible, to Professor C. D. Gallagher, Department of Industrial Management, Stephenson Building, The University, Newcastle upon Tyne NE1 7RU (0208 359111, Ext. 2188), from whom further particulars may be obtained by March 1985. (020611) HT

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Colleges and Departments of Art

EPSOM SCHOOL OF ART AND DESIGN

Applications are invited for the following posts:

DEPARTMENT OF COMMUNICATION DESIGN

Senior Lecturer